[redacted]

Cour d'Appel

Montréal

En appel de deux jugements rendus le 26 juillet 1991 par l'hono[redacted]re, distri[redacted]

Nos: [redacted]

LE PROCUREUR GÉNÉRAL DU CANADA
APPELANT-Intimé

c.

RJR-MacDONALD INC.
INTIMÉE-Requérante

-et-

[redacted]

LE PROCUREUR GÉNÉRAL DU CANADA
APPELANT-Intimé

c.

IMPERIAL TOBACCO LTD
INTIMÉE-Requérante

-et-

LE PROCUREUR GÉNÉRAL DU QUÉBEC
MIS EN CAUSE-Mis en cause

D O S S I E R C O N J O I N T
Volume XXXVIII: pages 7206 à 7397
(Dépositions)

4, rue Notre-Dame Est
Bureau 100
Montréal, Qc H2Y 1B7

Themis Multifactum INC.

Téléphone: (514) 866-3565
Télécopieur: (514) 866-4861

[redacted]

Cour d'Appel

Montréal

BAKER, NUDLEMAN & LAMONTAGNE
(Me Roger E. Baker, c.r.)
Procureurs de l'Appelant
1155, boul. René-Lévesque ouest
Bureau 2720
Montréal (Québec)
H3B 2K8
Tél.: (514) 866-6674

Me JAMES MABBUTT, c.r.
Procureur de l'Appelant
Tour Est
140, rue O'Connor
17e étage
Ottawa (Ontario)
K1A 0G5
Tél.: (613) 996-4425

PAUL EVRAIRE, Esq.
Procureur de l'Appelant
2, First Canadian Place
Bureau 3400
Exchange Tower, Box 36
Toronto (Ontario)
M5X 1K6
Tél.: (416) 973-0927

Me CLAUDE JOYAL
Procureur de l'Appelant
Ministère de la Justice
du Canada
Complexe Guy-Favreau
200, boul. René-Lévesque ouest
Tour est, 9e étage
Montréal (Québec)
H2Z 1X4
Tél.: (514) 283-4040

McMASTER, MEIGHEN
(Me Colin K. Irving)
Procureurs de l'intimée
RJR-MacDonald Inc.
630, boul. René-Lévesque ouest
Bureau 700
Montréal (Québec)
H3B 4H7
Tél.: (514) 954-3147

LERNER & ASSOCIÉS
(Me Earl A. Cherniak, c.r.)
Procureurs de l'intimée
RJR-MacDonald Inc.
Scotia Plaza
40, rue King ouest
19e étage, Box 210
Toronto (Ontario)
M5H 3Y2
Tél.: (416) 867-3076

4, rue Notre-Dame Est
Bureau 100
Montréal (Qc) H2Y 1B
Themis Multifactum INC.
Téléphone (514) 866-3565
Télécopieur (514) 866-4861

[redacted]

Cour d'Appel

Montréal

MacKENZIE, GERVAIS
(Me Georges R. Thibaudeau)
Procureurs de l'intimée
RJR-MacDonald Inc.
770, rue Sherbrooke ouest
Bureau 1300
Montréal (Québec)
H3A 1G1
Tél.: (514) 842-9831

OGILVY RENAULT
(Me Simon V. Potter)
(Me Pierre Bienvenu)
Procureurs de l'intimée
Imperial Tobacco Ltd
1981, avenue McGill College
Bureau 1100
Montréal (Québec)
H3A 3C1
Tél.: (514) 847-4747

OSLER, HOSKIN & HARCOURT
(Lyndon A.J. Barnes, Esq.)
Procureurs de l'intimée
Imperial Tobacco Ltd
1, First Canadian Place
Box 50
Toronto (Ontario)
M5X 1B8
Tél.: (416) 362-2111

BERNARD, ROY & ASSOCIÉS
(Me Jean-Yves Bernard)
Procureurs du Mis en cause
Palais de Justice
1, rue Notre-Dame est
Bureau 8.00
Montréal (Québec)
H2Y 1B6
Tél.: (514) 393-2336

4, Notre-Dame Street East
Suite 100
Montreal, Qc H2Y 1B7

Themis Multifactum INC.

Phone: (514) 866-3565
Fax: (514) 866-4861

[redacted]

Cour d'Appel

Montréal

En app[redacted] par
l'hono[redacted]re,
distri[redacted]

Nos: [redacted]

LE PROCUREUR GÉNÉRAL DU CANADA
APPELANT-Intimé

c.

RJR-MacDONALD INC.
INTIMÉE-Requérante

-et-

[redacted]

LE PROCUREUR GÉNÉRAL DU CANADA
APPELANT-Intimé

c.

IMPERIAL TOBACCO LTD
INTIMÉE-Requérante

-et-

LE PROCUREUR GÉNÉRAL DU QUÉBEC
MIS EN CAUSE-Mis en cause

D O S S I E R C O N J O I N T
Volume XXXVIII: pages 7206 à 7397
(Dépositions)

4, rue Notre-Dame Est
Bureau 100
Montréal, Qc H2Y 1B7

Themis Multifactum INC.

Téléphone (514) 866-3565
Télécopieur (514) 866-4861

500-09-001296-912
500-09-001297-910

Cour d'Appel

Montréal

BAKER, NUDLEMAN & LAMONTAGNE
(Me Roger E. Baker, c.r.)
Procureurs de l'Appelant
1155, boul. René-Lévesque ouest
Bureau 2720
Montréal (Québec)
H3B 2K8
Tél.: (514) 866-6674

Me JAMES MABBUTT, c.r.
Procureur de l'Appelant
Tour Est
140, rue O'Connor
17e étage
Ottawa (Ontario)
K1A 0G5
Tél.: (613) 996-4425

PAUL EVRAIRE, Esq.
Procureur de l'Appelant
2, First Canadian Place
Bureau 3400
Exchange Tower, Box 36
Toronto (Ontario)
M5X 1K6
Tél.: (416) 973-0927

Me CLAUDE JOYAL
Procureur de l'Appelant
Ministère de la Justice
du Canada
Complexe Guy-Favreau
200, boul. René-Lévesque ouest
Tour est, 9e étage
Montréal (Québec)
H2Z 1X4
Tél.: (514) 283-4040

McMASTER, MEIGHEN
(Me Colin K. Irving)
Procureurs de l'intimée
RJR-MacDonald Inc.
630, boul. René-Lévesque ouest
Bureau 700
Montréal (Québec)
H3B 4H7
Tél.: (514) 954-3147

LERNER & ASSOCIÉS
(Me Earl A. Cherniak, c.r.)
Procureurs de l'intimée
RJR-MacDonald Inc.
Scotia Plaza
40, rue King ouest
19e étage, Box 210
Toronto (Ontario)
M5H 3Y2
Tél.: (416) 867-3076

4, rue Notre-Dame Est
Bureau 100
Montréal [illegible]

Themis Multifactum INC.

Téléphone (514) 866-3565
Télécopieur (514) 866-4861

[redacted]

Cour d'Appel

Montréal

MacKENZIE, GERVAIS
(Me Georges R. Thibaudeau)
Procureurs de l'intimée
RJR-MacDonald Inc.
770, rue Sherbrooke ouest
Bureau 1300
Montréal (Québec)
H3A 1G1
Tél.: (514) 842-9831

OGILVY RENAULT
(Me Simon V. Potter)
(Me Pierre Bienvenu)
Procureurs de l'intimée
Imperial Tobacco Ltd
1981, avenue McGill College
Bureau 1100
Montréal (Québec)
H3A 3C1
Tél.: (514) 847-4747

OSLER, HOSKIN & HARCOURT
(Lyndon A.J. Barnes, Esq.)
Procureurs de l'intimée
Imperial Tobacco Ltd
1, First Canadian Place
Box 50
Toronto (Ontario)
M5X 1B8
Tél.: (416) 362-2111

BERNARD, ROY & ASSOCIÉS
(Me Jean-Yves Bernard)
Procureurs du Mis en cause
Palais de Justice
1, rue Notre-Dame est
Bureau 8.00
Montréal (Québec)
H2Y 1B6
Tél.: (514) 393-2336

TABLE DES MATIÈRES

*

* *

CANADA
PROVINCE DE QUÉBEC
DISTRICT DE MONTRÉAL

COUR SUPÉRIEURE

SOUS LA PRÉSIDENCE DE L'HONORABLE JUGE JEAN-JUDE CHABOT, J.C.S.

No: 500-05-009755-883

RJR-MACDONALD INC.
Requérante

c.

LE PROCUREUR GÉNÉRAL DU CANADA
Intimé

No: 500-05-009760-883

IMPERIAL TOBACCO LIMITÉE
Requérante

c.

LE PROCUREUR GÉNÉRAL DU CANADA
Intimé

12 mars 1990 - Vol. 44

COMPARUTIONS :

Pour la requérante
RJR-MACDONALD INC.

Me COLIN K. IRVING,
Me GEORGES R. THIBAUDEAU,
EARL A. CHERNIAK, Q.C.,
Me MICHEL A. PINSONNAULT,
Avocats

MACKENZIE GERVAIS
Procureurs

Pour la requérante
IMPERIAL TOBACCO LIMITÉE

Me SIMON V. POTTER,
Me PIERRE BIENVENU,
LYNDON A.J. BARNES, ESQ.,
Me GREGORY BORDAN
Avocats

OGILVY, RENAULT
Procureurs

Pour l'intimé
LE PROCUREUR GÉNÉRAL DU CANADA

Me ROGER E. BAKER, Q.C.,
Me CLAUDE JOYAL,
PAUL EVRAIRE, ESQ.,
Avocats

CÔTÉ & OUELLET
Procureurs

I N D E X

LIST OF EXHIBITS

LIST OF EXHIBIT (CONTD)

LIST OF OBJECTIONS

LIST OF UNDERTAKINGS

In the year of Our Lord nineteen hundred and ninety (1990), on this twelfth (12th) day of the month of March, PERSONALLY CAME AND APPEARED:

Me EARL A. CHERNIAK, Q.C.:

Pour RJR, Earl Cherniak and Michel Pinsonneault.

Me SIMON V. POTTER:

Pour Imperial, Simon Potter.

Me PAUL EVRAIRE:

Pour le Procureur général, maîtres Baker, Joyal, Williams et Evraire. Your Lordship...

THE COURT:

Before you start ...

Me EVRAIRE:

Yes?

THE COURT:

... if I sound funny and if I look funny, that's because I had dental surgery Friday. So I may have some problems making myself...

Me EVRAIRE:

We will bear with you the same way you always bear with us, so ...

THE COURT:

Okay.

Me BAKER:

I had it the week before on Friday, My Lord. Would you like to defer today's hearing?

THE COURT:

It's painful.

/0057 Me EVRAIRE:

Your Lordship, there is before you the supplementary report of Dr. Harris which Maître Baker undertook to provide to my colleagues and to the Court today and in compliance with that, we're not formally filing it but putting it before you. It'll be...

THE COURT:

Is that -- is that totally a new report or...

Me EVRAIRE:

It is not an amendment to the original. It is a brand new report.

Me BAKER:

It is a supplement.

THE COURT:

A supplement ...

Me EVRAIRE:

Supplement, yes.

THE COURT:

... but it's new material?

Me EVRAIRE:

Exactly. And to give Your Lordship an overview of where we're going this week -- and what I'm about to tell you is based, of course, on the estimates that my friends have given us for cross-examination -- Dr. Donald Wigle will be testifying today and tomorrow, then Dr. Roberta Ferrence will be testifying Wednesday morning. My friends have told me that they will be only about an hour in cross-examination with her, so it will be a very brief testimony, and I have her curriculum vitae which I will give to the Court now. And I'm also happy to report that Dr. Kozlowski will be available after Dr. Ferrence to complete his cross-examination and re-examination Wednesday, after Dr. Ferrence. I am sorry to say that things have not improved in his mother, but he wishes to complete the examination to get it over with, in the sense of then he can get on with other things. So I'll call to the stand now, Dr. Donald Wigle.

In the year of Our Lord nineteen hundred and ninety (1990), on this twelfth (12th) day of the month of March, PERSONALLY CAME AND APPEARED:

DONALD T. WIGLE, forty-seven (47) years of age, residing at [DELETED]

WHO, having made a solemn declaration, doth depose and say as follows:

EXAMINATION BY Me PAUL EVRAIRE,
On behalf of Respondent:

Q- Dr. Wigle, I'm showing you -- and I believe you have a copy before you of your curriculum vitae -- do you have a copy before you?

A- No.

Q- All right, I'll put that before you.

Me EVRAIRE:

I believe we gave one to Your Lordship last week?

THE COURT:

Yes.

Me EVRAIRE:

All right.

Q- And let me just highlight some of the accomplishments

that you have set out in your c.v., Doctor. I understand from your c.v. that you became a doctor of medicine in nineteen sixty-six (1966), is that correct?

A- Yes.

Q- And you obtained a Ph.D. in biochemistry in nineteen seventy (1970) from the University of British Columbia?

A- Yes.

Q- All right. Thereafter, you traveled to Denmark to take some post-doctoral studies. Can you very briefly tell us in which area of study that was particularized?

A- I was studying in the Institute for Molecular Biology and I was studying the control of expression of messenger RNA in mammalian cells. This is the control of gene expression.

Q- After your studies in Denmark, you joined the Department of National Health and Welfare in nineteen seventy-two (1972). What was your position at that point?

A- I was the medical officer in charge of investigations into problems connected with lead exposure in children and adults.

Q- What work did you actually do?

A- I designed and carried out studies on children and adults exposed to lead either through air, their job or through drinking water.

Q- All right. You then returned to your studies and went

to the University of California at Berkeley near San Francisco, in nineteen seventy-three/seventy-four (1973/74), and obtained a master of public health. Could you assist the Court with an understanding of the areas of your study while at Berkeley?

A- The -- I took the one (1) year Masters program at Berkeley, which was course studies only. It did not require a thesis. I studied epidemiology, biostatistics, environmental health, medical physics and related subjects.

Q- And then you returned to Health & Welfare.

And, My Lord, I'm just also pointing out to you that there is a brief biographical sketch at the introductory pages of Dr. Wigle's report.

And I notice at the second paragraph of that biographical sketch, Doctor, you indicate that you returned as chief of the Cancer Section to Health and Welfare in nineteen seventy-five (1975).

And can you assist His Lordship with, again, an understanding of the role you've played at Health and Welfare since nineteen seventy-five (1975)?

A- I've been involved in disease control in the chronic disease area. Initially we focused exclusively on cancer. As we grew we incorporated other areas; for example, birth defects, cardiovascular disease,

injuries, and the nature of the work is that we -- we try to identify high risk populations, like where are the disease problems in Canada, what are the characteristics of the people at high risk of disease, what are the changes in risk over time. And the other main area we study is what are the factors that cause disease, because we're interested mainly in disease prevention, not treatment.

Q- Now, I notice on page two (2) of your shorter c.v. that you've set out some of these areas. Under Research Experience, subsection C. And you speak in that paragraph of surveillance of non-communicable diseases in Canada.

Is there a particular meaning that you attribute to the word: "surveillance?" Obviously not a military one, but what do you understand by it?

A- Surveillance -- well, it can be considered a type of disease intelligence operation. We gather information on the extent of disease in Canada either through Statistics Canada, which in turn draws on the provinces, two (2) of our main sources of information are death certificate and cancer registry records. As well, we use hospital admission records and sometimes special surveys to identify what are the major disease problems, what are the characteristics of the people getting

disease, where do they live, and how is all this changing over time.

Q- Now, I note that you describe yourself as a member of the laboratory center for disease control, which is a section of Health and Welfare, I gather?

A- Yes.

Q- Right. What is your present position at the -- let's abbreviate it: call it the "L.C.D.C." the Laboratory Center for Disease Control. What is your present position there?

A- I'm acting director of the Bureau of Chronic Disease Epidemiology.

Q- And in your capacity at Health and Welfare since the mid-seventies to the present, do you play any public health role whatsoever?

A- Well, L.C.D.C. is part of a national public health network. So virtually everything we do is to support public health in Canada in terms of defining disease problems, the risk factors and the strategies likely to lead to prevention of disease.

Q- I noticed at page two (2) and three (3) of your short c.v. of the different professorships or auxiliary professorships that you have held, you have taught at the University of Ottawa, I understand, in the Department of Epidemiology and Community Medicine?

A- Yes.
Q- Do you still do that?
A- Yes.
Q- And also at McGill University in the Department, as they call it, of Epidemiology and Biostatistics?
A- Yes.
Q- Right. What field do you teach in at McGill?
A- Epidemiology.
Q- Right.
A- Of chronic disease.
Q- And you also teach at Queen's University in their Department of Community Health and Epidemiology; is that correct?
A- Yes.
Q- Right. And you continue to do so?
A- Yes.
Q- Right. I notice you also, and I won't go through them extensively, but you list at pages three (3) and four (4) the scientific committees that you are a member of, and thereafter the various journals or government reports, for that matter, that you have authored or co-authored; is that correct?
A- Yes.
Q- Right. My Lord, those are my questions in chief with respect to his qualifications. If my friend has ...

THE COURT:

To file his c.v.?

Me EVRAIRE:

Yes. We've marked that as AG-184.

Me CHERNIAK:

I have no questions at this time.

THE COURT:

Now, Mr. Wigle, you are qualified as an expert in your field.

Me EVRAIRE:

Thank you, My Lord. My Lord, I've borne in mind the fact that you've heard already three (3) epidemiologists. So you will be happy to hear that I will be...

THE COURT:

And I've read his report.

Me EVRAIRE:

...and you've read his report. I will be very brief with Mr. Wigle in chief and I'm sure everyone will be pleased to hear that.

THE COURT:

I have enumerated my pages.

Me EVRAIRE:

Oh, yes.

THE COURT:

I don't know if you've done the same with your's. Just to check we have the same...

Me CHERNIAK:

I did the same, My Lord, because it was hard to do that. I started -- page one (1) is the page called: "Bibliography Summary."

THE COURT:

Right.

Me CHERNIAK:

So we have the same pages then.

THE COURT:

Okay. And you end up with the same number as I: eighty-three (83)?

Me CHERNIAK:

I ended up, after the appendices, I ended up with page eighty-three (83), yes.

THE COURT:

Okay. Good.

Me EVRAIRE:

I fail to have done that, because I started with the page after the contents. But I'll -- actually my questions won't be specific to the report, they'll be mainly to highlight, but you needn't worry.

Q- Well, Dr. Wigle, let me ask you, you've touched on a lot

of subjects in your report, but can you assist us in an understanding of how epidemiologists decide whether a given factor is causally related to the risk of disease or death in the studies that you've performed?

A- First of all, we assembled the public studies on the particular problem under study. We checked those studies to make sure that they were well designed and conducted and that obvious sources of bias or confounding have been eliminated, at least in part or totally.

We then looked between the studies for certain signs. First of all, we looked at the strength of the association which is measured by the relative risk. A high relative risk is suggestive of a causal relationship.

The next most important thing we looked for is evidence of a dose response relationship, which means that the risk of disease increases as the level of exposure to the possible causal factor goes up.

We looked for biologic plausibility. In other words, is there evidence from animal or other studies that would suggest that the particular association could occur on a biologic basis? We looked for the time relationships. Is there an appropriate interval between exposure to the agent and development of disease. For

example, in cancer, most known cancer causing agents take at least twenty (20) years. There are exceptions, but by and large it takes at least twenty (20) years to develop cancer. We looked for consistency. Can the results be replicated in different studies done in different areas by different people at different points in time? Those are the main criteria.

Q- Now, at page seven (7) and eight (8) of your report, you talk about the I.A.R.C. criteria for causality and those that are also referred to by Bradford Hill. I take it that you don't sit down with a checklist when you're doing your work, but those matters which you've just described in assessing causality, are they the same -- the same pattern of study or review, depending on -- sorry, with respect to every disease that you seek to investigate?

A- Pretty much, especially in the chronic disease area. In other disease areas, there may be evidence from randomized trials where, for example, the efficacy of a vaccine can be tested in a randomized trial. In the chronic disease area, there are many difficulties in doing randomized trials and there's only been a few done today. For example, the MRFIT trial.

THE COURT:

Q- The what? Ah, MRFIT.

A- MRFIT. Multiple Risk Factor Intervention Trial. The United States is still considering right now whether to spend almost two hundred (200) million dollars to do a randomized trial, to see if reducing fat in the diet will reduce the risk of breast cancer. So you can see that these types of trials are very expensive and are not done very often and when they are done, there are problems in interpreting the data.

Me EVRAIRE:

Q- Now, I'm sure we all have our own perception of what chronic disease means. How does Dr. Don Wigle use that expression? What do you mean by chronic diseases?

A- Well, the way we use that term in L.C.D.C. is simply any disease that's not communicable, that is it's not caused by an infectious agent. So, for example, we include injuries and birth defects. Chronic has the connotation of a disease that lasts for a long time. This is generally true.

3/0045

Q- All right. Now, we've heard evidence of different experts who have indicated various types of cancer caused by smoking. Can you assist the Court with an understanding of how this one thing, smoking, can be causally related to so many different types of cancer?

A- Well, tobacco smoke is a very complex mixture. It contains over four thousand (4,000) known chemicals,

over fifty (50) of which are known to cause cancer either in humans or animals. It contains literally dozens of toxic chemicals, hydrogen cyanide for example. We know that when tobacco smoke is inhaled into the lungs, that chemicals present in the tobacco smoke are absorbed into the blood stream and we can detect them in saliva and urine samples collected from people who smoke. So that we know that there is a large number of toxic chemicals. We know that they're inhaled into the body, distributed through the blood stream and if we look at the diseases caused by smoking, they really break down into two (2) main groups: the diseases in tissues directly exposed to smoke -- this would be the mouth, the larynx, the lungs -- and then the diseases in tissues where the chemicals must travel through the blood stream, and these include, for example, pancreas -- cancer of the pancreas, cancer of the bladder, coronary heart disease and so on.

Well, I guess the other factor to consider in trying to explain how can so many diseases be caused by one even complex mixture is the dose. The average Canadian smoker smokes about twenty-seven (27) or eight (28) cigarettes per day and so there is chronic repeated exposure at -- at levels which are biologically meaningful.

THE COURT:

Q- Is that women and men?

A- There is a difference between men and women. That's for the average Canadian, man or woman. Men, on average, tend to smoke more cigarettes per day than women. I don't have the exact figures.

Me EVRAIRE:

Q- But what are the leading types of cancer among Canadian women, while we're speaking of the differences in gender.

A- Well, if we look at just simply the number of cancer deaths per year, right now breast cancer is the leading cancer killer, at about four thousand (4,000) deaths per year. It's followed closely by lung cancer, which now is around thirty-five hundred (3500), or thirty-seven hundred (3700), somewhere in there, and then cancer of the large intestine, but there are differences between these cancers. For example, the death rate for cancer of the large intestine is going down in Canadian women. The death rate for breast cancer has been quite stable for many years, but the death rate for lung cancer is escalating very rapidly and within very few years should overtake the death rate for breast cancer.

Q- And finally, Doctor, let us concentrate on page thirty-four (34) of your report, the number of deaths

attributable to tobacco use in Canada, if you could turn to that page, chapter -- Section 5? In your conclusion there you say:

"In summary, over 30,000 deaths among Canadians aged 35 to 79 were attributable to smoking during 1985."

Could you explain to the Court the basis of this estimate, Doctor?

A- Well, there is many ways to estimate the number of deaths caused by tobacco in Canada. The -- Dr. Miller in his testimony estimated that about fifteen thousand (15,000) cancer deaths are attributable to smoking annually. In my evidence, I estimate that somewhere between fourteen (14,000) and sixteen thousand (16,000) deaths due to cardiovascular disease are attributable to smoking each year in Canada and I also estimate that about five thousand (5,000) deaths due to emphysema are caused by smoking. So if you add those up, it comes out roughly to thirty-five thousand (35,000).

We've also used other methods which are presented in Tables 5.1 and 5.2. ...

Q- Let us turn to those, at page...

A- ... near the back...

THE COURT:

Page eighty (80) and eighty-one (81).

Me EVRAIRE:

Q- ... eighty (80) and eighty-one (81). And so that His Lordship understands the methodology used, could you give us an example of how you have come to the -- or explain to us rather, how you've come to the thirty-five thousand four hundred and four (35,404), actually, figure at page eighty (80)? Explain your methodology there, if you will.

A- Table 5.1, if you start at the first line, says:

"Relative risk for ever smokers, relative to never smokers ..."

-- and we see figures of one point seven four (1.74) for men and one point six five (1.65) for women. These are estimates that we developed by following up Canadians who took part in the nineteen seventy - nineteen seventy-two (1970-1972) Nutrition Canada survey. We followed those people up till the end of nineteen eighty-one (1981). At that time, about eight hundred (800) of them had died and after adjustment for age, hypertension and diabetes, the relative risk for ever smokers, relative to never smokers, of dying in that age range, thirty-five (35) to seventy-nine (79), from any disease at all, is as presented.

In other words, men who smoked, had ever smoked, had about a seventy-four percent (74%) increased risk of

death during the follow-up period and women about a sixty-five percent (65%) increased risk of death.

Okay. The next line is the proportion of ever smokers in the Canadian population. These numbers come from the Nutrition Canada cohort and can be considered estimates for roughly the period of nineteen seventy-six (1976). However, the current figures would be quite close to that. For example, in the nineteen eighty-five (1985) general social survey, the proportion of ever smokers among men was point seven seven (.77), virtually identical, and for women it was slightly increased, point four nine (.49). So that by nineteen eighty-five (1985), a slightly higher proportion of women were -- could be categorized as having ever smoked.

THE COURT:

Q- But what does the number mean? Point seven seven six (.776) of what?

A- That's a proportion. It really means seventy-seven point six percent (77.6%)...

Q- Percent.

A- ... of men.

Me EVRAIRE:

Q- Have ever smoked?

A- Were current smokers or ex-smokers.

THE COURT:

Q- Oh, ever smokers.

A- Yes. That means current or ex. And for women, forty point one percent (40.1%).

Me EVRAIRE:

Q- Go ahead.

A- Okay. The next line is the population attributable risk percent, which is developed from the relative risk and from the proportion of ever smokers in the same formula that Dr. Miller described in his testimony. So that point three nine four (.394) again means thirty-nine point four percent (39.4%) of the deaths in men were attributable to ever smoking. For women, point two one three (.213) or twenty-one point three percent (21.3%).

Okay, the next line is the total number of deaths in that age range, thirty-five (35) to seventy-nine (79), in Canada during nineteen eighty-five (1985).

Q- Are these just tobacco-related deaths now?

A- These are all deaths.

Q- All deaths in Canada.

A- Any cause whatsoever.

Q- Right. Including car accidents, whatever?

A- Yes.

Q- Okay.

A- Then by multiplying the number of deaths by the

population attributable risk percent, we get the numbers in the last line, which is the number of deaths attributable to ever smoking, which is roughly twenty-six thousand (26,000) in men and roughly nine thousand (9,000) in women, for a total of about thirty-five thousand (35,000). The rough confidence limits on that estimate are twenty-three thousand (23,000) to forty-three thousand (43,000).

Q- All right. You have used the second method at page eighty-one (81), Table 5.2. Take any age there to give us an understanding of the methodology used in arriving at your thirty-five thousand (35,000) in this case. Thirty-five thousand (35,000) in one, thirty-one (31,000) in fact.

A- Okay. Table 5.2 is a different method. We had to use American data to get a study large enough to present the estimates broken down in five (5) year age groups.

Q- Well, let's just stop there for a moment. Table 5.1 was strictly Canadian data?

A- Yes.

Q- All right. And this one has some U.S. component?

A- The U.S. component is the first column, which is the relative risk for ever smokers relative to never smokers.

Q- Right.

A- Broken down for men and women and by five (5) year age groups. These figures are derived from a Ph.D. thesis by Godley. They represent the relative risk of Americans in the period around nineteen sixty-six (1966). The second column is the proportion of ever smokers in Canada which was developed from the general social survey.

Q- That's similar data as you were using before?

A- Yes.

Q- Okay. Go ahead.

A- Or it wasn't the Labour Force Survey. I can't remember. It was either the General Social Survey or the Labour Force Survey that was carried out in nineteen eighty-five (1985). Both surveys give similar estimates.

Okay. The next column is the population attributable risk percent, derived as before.

Q- That's from the formula you spoke of that Dr. Miller testified about as well?

A- Yes.

Q- Okay. And that's similar to Table 5.1, third line, is it?

A- The formula's not given in 5.1.

Q- Yes, but it's similar information.

Me CHERNIAK:

Well, I mean, if it was, it was. Let's have the witness give that evidence, not my friend.

Me EVRAIRE:

Q- Is that correct, Doctor?

A- The same formula was used. The proportion exposed times the relative risk minus one (-1), divided by that number, plus one (+1).

Q- Go ahead.

A- The nineteen eighty -- the fourth column there is the number of deaths, the total number of deaths in Canada in nineteen eighty-five (1985), broken down by sex and age.

Q- But just to be clear about it now. In comparing Table 5.1 and Table 5.2 you're showing the total of one hundred and thirty-three thousand (133,000) odd deaths, and if you look at total deaths, Table 5.1, we're looking at about a hundred and eight thousand (108,000). Why is there a difference there?

A- The first method we restricted to the age range thirty-five (35) to seventy-nine (79), because that was the age range we had used in earlier studies. This table goes up to age eighty-four (84), so the deaths in the age group eighty (80) to eighty-four (84) have to be added to the table before.

Q- Thank you. Go ahead.

A- And the final column is the total number of deaths attributable to tobacco use in Canada, which is the product of the previous two (2) columns and then summed up over age, yielding for the age range thirty-five (35) to eighty-four (84), an estimate of about thirty-five thousand (35,000) deaths.

Q- Are there other methods besides the two (2) you've set out here and the evidence you've already given us about how to assist the accurateness of the thirty-five thousand (35,000)?

A- Well, a rough rule of thumb is thirty (30), thirty (30), eighty-five (85) which is thirty percent (30%) of cancer deaths, thirty percent (30%) of coronary heart deaths and eighty-five percent (85%) of deaths from emphysema are attributable to smoking. If you use those estimates, which come from the U.S. Surgeon General in his various reports over the past several years, if you apply those to Canadian death statistics, you get an estimate of about thirty-three (33,000) or thirty-four thousand (34,000) deaths.

THE COURT:

When I look at Table 5.2 for the relative risk of ever smokers, you would expect to find a higher relative risk the older you get, if you're a smoker.

A- Well, this is for all cause mortality. The -- what we find, for example, for cardiovascular disease is just the opposite. That the relative risks are much higher among younger people and the relative risk goes down with age. And for all cause mortality, we see that there's no clear trend. If you look at the relative risk estimates for men, they range, for example, one point six (1.6) to one point nine (1.9). Then if you go down: one point eight (1.8), one point three (1.3), one point four (1.4), they might be falling slightly with age and with women it seems to be fairly flat, possibly even a slight increase in the very oldest age groups. But a large part of that variation will be sampling variation due to small numbers.

Q- Now, you just told us that another check, excuse me, on the -- on the figure would be the U.S. Surgeon General data. Why is -- or is that reliable, Doctor, in terms of the Canadian experience?

A- Well, the U.S. Surgeon General, over the years, has published reports in which the world literature on Smoking and Health has reviewed -- the Surgeon General office draws on a large number of experts to reach its conclusions.

Q- No, my concern is more focused on the question of whether the Canadian data can rely on the U.S.

experience?

A- The -- the main Canadian study included in the U.S. Surgeon General report is the Canadian Veterans study which was done in the fifties (50s) and sixties (60s). The -- the figures I mentioned before are thirty (30), thirty (30), eighty-five (85). Take for example the thirty percent (30%) of cancer deaths that the U.S. Surgeon General attributes to smoking. Dr. Miller, in his evidence, estimated that twenty-nine percent (29%) of cancer deaths in the latest year, I think he looked at nineteen eighty-eight (1988), that twenty-nine percent (29%) of cancer deaths in that year were attributable to tobacco. He did an estimate in nineteen eighty-four (1984) that about twenty-six percent (26%) were attributable to tobacco. The proportion has risen, possibly due to the increased number of lung cancer deaths in the women.

If we look at the Surgeon General estimate for coronary heart disease, which is thirty percent (30%), it's consistent with what we find in Canada. One (1) of the papers cited in my evidence is the -- the role of smoking and cardiovascular disease in Canada, again based on the Nutrition Canada Survey Cohort and in that study we found that after adjusting for high blood pressure and diabetes that below the age of sixty-five

(65), about half of all cardiovascular deaths, that's coronary heart disease and stroke, are attributable to smoking and for -- for the full age range, thirty-five (35) to seventy-nine (79), we found that for the -- for the seven percent (7%) for men and ten percent (10%) for women of all cardiovascular deaths were attributable to smoking after adjustment for the other risk factors which were important.

Q- Thank you, Doctor. Could we mark Dr. Wigle's report as Exhibit AG-185. Your witness.

CROSS-EXAMINATION BY Me CHERNIAK:

Q- Doctor, am I right in assuming that what you were doing in your report was attempting to prepare a scientifically valid survey of the Canadian epidemiological situation with regard to tobacco and -- and health?

A- Yes.

Q- And to do that, you would have to look at the data in an unbiased scientific way, would you not?

A- Yes.

Q- And in a dispassionate way?

A- Yes.

Q- And you would have to let your conclusions follow what the evidence showed as opposed to what your own personal

predilection showed, would you?

A- Yes.

Q- And you'd agree that your personal views have no place in such a survey whatsoever?

A- Yes.

Q- The fact is that you have very strong personal views on tobacco sales, advertising and the tobacco industry, don't you?

A- I have strong personal views on the need to control smoking to prevent disease.

Q- You have strong personal views on the use of tobacco, the advertising of tobacco and the tobacco industry itself, don't you?

A- Well, I think that advertising or control of advertising is just one (1) part of a multi-faceted strategy that is needed to control tobacco.

Q- For instance, you have described tobacco as the number one (1) public health enemy, haven't you?

A- Yes.

Q- And you have advocated that drug stores should not sell tobacco products, have you not?

A- I advocated that it was inconsistent for drug stores to be selling products to treat disease and at the same time to be selling the major cause of preventable disease in Canada.

Q- So it's your view, in other words, your -- your position is that drug stores should not be permitted to sell legal products -- that's your position, isn't it?

A- I think they should be permitted to sell legal products other than tobacco.

Q- I see. And that's because of the strong personal views that you have about tobacco, right?

A- Well, my personal views weren't -- were only developed after many years of studying the effect of smoking on health.

Q- I didn't ask you where you developed them, Doctor, I'm asking you whether, as a part of this personal view that you had, you take the position that drug stores shouldn't sell tobacco products?

A- That's, I think, one (1) part but only a small part of what is needed to deal with tobacco.

Q- Is that your view or not, Doctor?

A- Well, it's part of my view, yes.

Q- I didn't -- I didn't suggest it's your whole philosophy but it's your view that drug stores shouldn't sell tobacco products? That's your view?

A- Yes.

Q- And you would agree, I think, that the scientific examination of the effects of passive smoke is still very much an open question as to the extent to which

passive smoke is or is not a health hazard, would you not?

A- No, I would not.

Q- You wouldn't agree with that?

A- No.

Q- And there are those who take that position, though, in the scientific community, aren't they?

A- Well, I think you have to look at what we know now...

Q- Excuse me, are there or not, Doctor?

A- We have to look at what we know now and what remains to be studied. We have a certain body of knowledge now which is substantive. Obviously, there's more to be learned.

Q- But, Doctor, you have, for instance, described passive smoke as a modern scourge, haven't you?

A- I don't recall stating that.

Q- Right. Let me refresh your memory then.

Did you write an article for the Canadian Journal of Public Health in August of nineteen eighty-three (1983)? I'd have to...

A- Possibly.

Q- Let me show it to you. I'm not going to put it in, I'm just going to refresh your memory.

Now, this is a publication from the Canadian Journal of Public Health in August of nineteen

eighty-three (1983). The editorial has got a headline: "Forced Smoking," author, Donald Wigle -- Donald T. Wigle. Is that you?

A- Yes.

Q- And the Canadian Journal of Public Health, is that a publication that you often write in?

A- Yes.

Q- And are you on its editorial board?

A- Yes.

Q- Have been for some time?

A- Yes.

Q- And what you're talking about in this editorial is passive smoke; right?

A- Yes.

Q- And would you look at the right-hand column, halfway down. We're talking nineteen eighty-three (1983) now, seven (7) years ago.

A- I guess I did say: "modern scourge."

Q- Yes.

"What is to be done to deal with this modern scourge?"

That was your view in nineteen eighty-three (1983) of the -- of the problem posed, such as it is, by passive smoke: "modern scourge," were your words, Doctor? Your words?

A- Yes, definitely.

Q- Yes.

THE COURT:

Where are you reading from?

Me CHERNIAK:

I'm sorry, sir. Halfway down the right-hand column on the first page, My Lord.

THE COURT:

About this -- yes, okay.

Me CHERNIAK:

"What is to be done with this modern scourge?"

Q- Now, that's not a dispassionate, intellectually rigorous phrase, is it? Is it, Doctor?

A- Actually, I don't really recall what I had in mind when I used those words, but...

Q- But please answer my question, Doctor. That's not a phrase that one would associate with a dispassionate review of the evidence and it wasn't given after a dispassionate review of the evidence. It's a polemical word. It's an argumentative word, isn't it?

A- I don't -- I don't accept that.

Q- You don't accept that. Okay.

A- To me "scourge" has the connotation of a problem that is substantive.

Q- Doctor, you haven't done any research yourself into the

relationship between tobacco advertising and consumption of tobacco products by children; have you?

A- Could you repeat the question?

Q- You haven't done any research, yourself, into the relationship between tobacco advertising or advertising of the tobacco products and its use by children; have you?

A- No.

Q- You wrote a paper which we find in the government productions in nineteen eighty-six (1986)...

Oh, yes, perhaps we should put this editorial in as RJR-148.

Did you write an article in nineteen eighty-six (1986) in the Ontario Medical Review, the headline of which was: "Children, the Victims of Tobacco Smoke?"

A- Yes.

Q- Yes. And, again, that's your headline; isn't it?

A- Yes.

Q- And is there another headline in that article -- I'll just show it to you, so you see that you get the right document. And this is -- you will find this in the government productions of my friends at pages thirteen thousand five sixty-two (13,562) to thirteen thousand five sixty-four (13,564).

Me EVRAIRE:

Does my friend have an extra copy?

Me CHERNIAK:

I don't.

Me BAKER:

Well, what government production is it?

Me CHERNIAK:

Well, those are your numbers.

Me EVRAIRE:

Well, perhaps if my friend had given me forewarning, I might be -- there are a lot of government productions. If my friend had given me forewarning, I might have pulled those, but I, frankly, wasn't in a position to know which my friends would be referring to.

Me CHERNIAK:

Well, My Lord, I'm only going to show him two (2) or three (3) things, we don't need the whole article.

Me EVRAIRE:

I'll stand by my friend, if my friend doesn't mind.

Me CHERNIAK:

Q- Did you write a headline in that article, in the middle of the article: "Children as Victims of Tobacco Advertising?"

A- Yes.

Q- Yes. And in the body of the article, under that same

heading, you say:

"Unfortunately there has been very little research on the impact of advertising on young non-smokers."

Did you say that?

A- Yes.

Q- So with that intellectual vigour that you told us about, you could write a headline that said: "Children as Victims of Tobacco Advertising," and put in the body of that heading that there has been very little research on the impact of advertising on young non-smokers?

A- Well, I went on in that section that you pointed out to describe the Norwegian experience.

My Lord, in Norway...

Q- Excuse me, sir, did you write that?

Me EVRAIRE:

Let him answer the question, Mr. Cherniak. He's answering the question, let him do so.

A- I'm trying to point out why I ended up with the headlines. In Norway, in the nineteen sixties (1960s), the prevalence of smoking was increasing rapidly in young children. These are children in the age range thirteen (13) to seventeen (17) or twelve (12) to seventeen (17).

So the prevalence was increasing and then in the

early nineteen seventies (1970s), perhaps nineteen seventy-five (1975), I can't remember the exact year, Norway brought in a total ban on advertising, tobacco advertising, and by the time of the next survey the trend of smoking in young children, instead of going up, it started to fall.

Me CHERNIAK:

Q- Yes. What you point out is -- in the very next sentence is:

"In Norway, where this occurred in the same year that there were significant price increases of cigarettes as well."

A- Well, the price increase...

Q- Did you point that out or not, Doctor, first of all?

A- The price increases, which were introduced in nineteen seventy-five (1975) or thereabouts, had -- would not have had time to cause that decline. Would probably not have had time to cause that decline in smoking. Whereas the advertising ban had already been in effect for some years.

Q- Well now, what you say is: by nineteen eighty (1980), five (5) years after the ban, in the year of the first major increase in the price of tobacco products through taxation, smoking rates were on the decline for both sexes, particularly large decreases for girls.

A- That's what I was saying.

Q- Yes.

A- Only it's nineteen eighty (1980), not nineteen seventy-five (1975).

Q- But the point was that the only year that you quoted was the same year that there were price increases, and what you call -- yes, what you call "major increases." Your words: "major increases." That's the year that the... that smoking went down among young people, right? That's what you said.

A- Yes, but the survey was done in that year and there's price increase. I don't know exactly when in that year it was introduced, whether it was January or June or December, but only this had a very short time to have an impact on sales.

Q- But price increases have an impact pretty quickly, don't they, Doctor?

A- Yes, but we don't know whether they had a month or twelve (12) months.

Q- Yes, of course. You're the one who wrote the article with that intellectual rigour that you told us about. It doesn't appear in the article when the price increase, when that major price increase took effect?

A- Well, the fact is that when tobacco control programs are introduced, if they have more than one (1) element, it's

going to be difficult to sort out which element had what impact on tobacco sales.

Q- So by nineteen eighty-six (1986), without doing any research yourself and with reference only to the nineteen -- to the Norwegian experience in which there was a reduction based on both price increases and the ban five (5) years earlier on advertising, you were able to conclude in the same article:

"Clearly, there is an urgent need to take effective action to protect children from tobacco in all its forms, involuntary smoking, tobacco advertising/promotion and active smoking."

That's what you said, isn't it?

A- Yes.

7/0064

Q- Would you just like to review it?

A- Yes.

Q- So by nineteen eighty-six (1986), you had become an advocate for the banning of tobacco advertising, had you not?

A- Well, I'm an advocate and was an advocate of all the measures that are needed to control tobacco.

Q- So is the answer to my question: yes, by nineteen eighty-six (1986), you had become an advocate of banning tobacco advertising?

A- Yes, but in the context of the comprehensive control program.

Q- Is the answer to my question yes?

A- The simple answer is yes, but the context is the total program.

Q- And you remain an advocate of the banning of tobacco advertising?

A- Along with most of the other forty thousand (40,000) Canadian physicians, yes.

Q- And you have said -- you have written that tobacco is a...

THE COURT:

Are you giving a number?

Me CHERNIAK:

Yes, I will put that in. It's the only copy that I have, sir.

THE COURT:

Before, show it to your opponents, so that he could trace it in his papers.

THE CLERK:

It will be RJR-149.

Me CHERNIAK:

Q- And you have written as well that you consider to be, tobacco, "a lethal substance, as addictive as heroin", haven't you?

A- Yes.
Q- And you have written that you consider promotion of sporting events by tobacco companies to be obscene, haven't you?
A- I may have used the word, I'm not sure now.
Q- Well, let's look at that one. I'm showing you an article that you and a man named Morgan wrote in the Canadian Medical Association Journal in June of nineteen eighty-four (1984). And if we look at the right-hand column, the -- the...
A- I don't have a copy of that report.
Q- Oh, didn't I give you a copy? Everybody has a copy but you. First of all, do you recollect the article?
A- Yes.
Q- And is the Donald T. Wigle you?
A- Yes.
Q- And the headline, or at least the title of the article, is "The Tobacco Industry, Still Resourceful in Recruiting Smokers". And we look at the middle of the right-hand column, the middle of your part of the right-hand column, where you say this:

> "The association of tobacco, a lethal substance that is at least as addictive as heroin, with sports is ..."

-- and then there is a quotation:

"... grossly repugnant to the generally accepted notions of what is appropriate, repulsive by reason of malignance, hypocrisy, cynicism, irresponsibility, crass disregard of moral or ethical principles."

And the quotation is from Webster Dictionary. And then you say:

"In a word, obscene."

Your words. That's what you wrote?

A- I believe those were Dr. Morgan's words but I co-authored the article with him.

Q- Yes. Well, what you meant was the association of tobacco with sports, the use by that, the association of tobacco companies in sponsoring a sporting event was obscene. That's the word that the authors of the article used, wasn't it?

A- Well, certainly hypocritical, which is one meaning of obscene.

Q- Please, we're going to get along a lot faster, Doctor, if you just answer my questions. Let's just do it one stage at a time. If your answers need any clearing up, your counsel has the right to re-examine you on it. What I want to know is were you saying that the relationship between tobacco sponsorship and sports is obscene? That's what it means, isn't it?

A- Obscene as defined in the article, yes.

Q- Yes. Well, and you found it necessary to use the dictionary definition of "obscene", including the words "grossly repugnant, repulsive", in order that the reader wouldn't miss what you meant by the word "obscene". Correct?

A- Well, we gave the definition so that...

Q- Yes.

A- ... they'd know what we meant.

Q- Yes. Hardly a dispassionate discussion of the subject, was it, Doctor?

A- Well, the -- it is hypocritical to advertise products in association with sports when in fact they -- they impair your health.

Q- Yes.

A- It seems to be two (2) opposites.

Q- Is the answer to my question then, Doctor, hardly a dispassionate discussion of the problem?

A- I think you'd have to decide that as a reader.

Q- But this whole article is a polemic on the subject. You're not discussing the problem as to whether it's right or wrong. You come to the conclusion, you're telling everybody why it's disgusting, aren't you? You already made that conclusion?

A- We didn't use the word "disgusting". The...

THE COURT:

You're right.

Me CHERNIAK:

I was paraphrasing.

Q- The point is you were not, by this article, attempting to come to some dispassionate intellectually rigourous consideration of the problem; were you, Doctor? You were arguing against it?

A- The context of the article is having come dispassionately to the scientific conclusion that tobacco is the major preventable cause of early deaths in Canada, that the promotion of tobacco products is highly undesirable, even if it only has a small effect on consumption.

Q- And you then went from the research -- from the scientific researcher to the advocate of banning any relationship between tobacco and promotion of its products in this way. That's what happened, isn't it? That's what you're doing here?

A- Well, it's the role of physicians in public health to be advocates for public health. I'm an advocate for public health, whether it be controlling tobacco or reducing radiation exposure or anything else that causes early deaths.

Q- Lawyers have a word for getting out of the impartiality

that -- for Judges getting out of the impartial nature of their role. They call it: "descending into the arena." Sort of a nice turn of phrase.

That's what you did here. You descended into the arena of the debate about whether advertising was right or wrong and the extent to which it should be controlled; didn't you?

A- Public health people have to be in the so-called arena and always have been.

Q- Right. I'm not knocking you for it. We're -- I'm just trying to find out what you are. Whether you're here as a dispassionate intellectually rigourous academician helping us with a discussion of the problem or whether you're here as a public health advocate, advocating a particular political position. Which is it, Doctor?

A- I'm here as a scientist and I'm here as a public health professional.

Q- Advocate! Right, Doctor? Advocate!

A- That depends how you define the word.

Q- Yes. You haven't changed your views since nineteen eighty-four (1984) on the tobacco industry and advertising, have you, since you wrote this article?

A- I think that a comprehensive program is needed to control tobacco, of which an advertising ban is one part.

Q- Have you changed your views from what you wrote in nineteen eighty-four (1984) in this article?

A- Which views?

Q- The views that you expressed in the part I just read you?

A- Could you rephrase your question?

Q- Have you changed your views from what you wrote in the part of this article that I just read you? Do you want me to read it to you again? You've got it in front of you. Read it!

THE COURT:

Why don't you....

A- The part referring to obscene.

Me CHERNIAK:

Q- The association of tobacco with sports, and by that I mean -- by that you mean -- I take it that you mean, the association of tobacco companies with sports sponsorship, defined as obscene, repulsive, hypocritical, cynical, irresponsible, repugnant.

You haven't changed those views, have you?

A- My view is -- today is that the control of tobacco requires a comprehensive approach, including a ban on advertising and promotion.

THE COURT:

That's not the question that is asked to you. The

question that is asked to you is whether or not you still share the same views today as you did in nineteen eighty-four (1984) when you wrote or co-authored that paragraph which says:

"... the association of tobacco, a lethal substance that is at least as addictive as heroin, with sports, is grossly repugnant."

Do you generally accept the notion of what is appropriate, repulsive by reason of malignance, hypocrisy, cynicism, irresponsibility, crass disregard of moral or ethical principles: in a word: obscene. That's the question. What is the answer?

A- Yes.

Me CHERNIAK:

Q- You've changed your views?

THE COURT:

No, still his views.

Me CHERNIAK:

Q- Oh, still your views. All right.

Now, Doctor, I'm interested -- look down the left-hand column. You described yourself there -- now -- yes. Yes, the star refers to you. That's -- you described yourself as the chief non-communicable disease division, Bureau of Epidemiology, Laboratory Center for Disease Control, et cetera; do you see that?

A- Yes.

Q- And you described yourself as the scientific editor of the Canadian Medical Association Journal. In other words, the very publication that this...

A- No, no, that's Peter Morgan.

Q- Oh, that's Peter Morgan.

A- The little dagger's missing.

Q- I'm sorry. Okay. But the first three (3) lines then are you?

A- Right.

Q- And I see at the very end of your article, this. Will you turn to the last page of your article, just before the references.

THE COURT:

Page fifteen thirty-eight (1538)?

Me CHERNIAK:

Page fifteen thirty-eight (1538), yes, just before the heading: "References."

Q- You tell the reader: a pamphlet entitled "The Case Against Tobacco Advertising and the Prevention of Disease" is available for one dollar ($1.00) from the Non-Smokers Rights Association and it gives the address. Do you see that?

A- Yes.

Q- Yes. You did not indicate in the body of the article,

Doctor, that at that time you were a director of the Non-Smokers Rights Association, did you?

A- As a medical advisor to the Non-Smokers Rights Association.

Q- And you had been for how long?

A- At the time of this article? I don't recall when I was appointed, but it'd be roughly nineteen eighty (1980).

Q- Roughly nineteen eighty (1980). When was the Non-Smokers Rights Association formed?

A- I don't know.

Q- And now, we'll get back to my question. You were -- let me phrase it exactly. You were, at that time, an Honorary Director of the Non-Smokers Rights Association, weren't you, Doctor?

A- Yes.

Q- And you had been for many years prior to nineteen eighty-four (1984)?

A- For some time prior to eighty-four ('84).

Q- Yes, and in that intellectually rigourous way of yours, did you not feel that it was appropriate to inform the reader that you were, at that time, both the medical director and -- I'm sorry. What was the word? The medical what? Advisor. Medical Advisor and an honorary director of the Non-Smokers Rights Association?

A- Well, there was no secret. My name was on the

letterhead of the Association.
Q- Well, I'm not suggesting there was any secret about it. You just didn't feel it necessary to advise the reader of this article in the Canadian Medical Association Journal of your particular bias, did you?
A- Well, you're alleging a bias which I don't accept.
Q- Well, Dr. Wigle, the Non-Smokers Rights Association was and is an activist organization that actively campaigns against all forms of tobacco use and all forms of advertising of it, among many other things that it does with respect to tobacco use; am I right?
Am I right, Doctor?
A- Well, the -- I don't...
Q- Is that right? Have I misstated what the Non-Smokers Rights Association is; that's the question?
A- The -- but the context is a bias which I don't accept. What -- my position is that I can be a scientist and a public health advocate and there's no conflict.
Q- Doctor, let's do this one stage at a time. As I say, I'm -- I'll get to some of these other questions. Don't think of my next, second or third question. Think of the question I asked you.
A- I'm just answering the question to the best of my ability.
Q- Think of the question I asked you, Doctor. Is the

Non-Smokers Rights Association an advocacy organization that, among other things, attacks tobacco use in all its forms and attacks the -- attacks all tobacco advertising? Is it?

A- To the best of my knowledge, yes.

Q- And it was in nineteen eighty-four (1984)?

A- Yes.

Q- And it was when you joined it?

A- I don't recall what the position was at the time I joined it on advertising.

Q- And as an honorary director of it, Doctor, you felt it necessary -- you would subscribe to its views, wouldn't you, you'd have to?

A- I'm an -- I was an honorary director and my role was to provide advice on the risks of tobacco not on the activities of the organization.

Q- So are you telling us that you're an honorary director but you didn't subscribe to its views or, as an honorary director, did you subscribe to the views and aims of the Non-smokers Rights Association?

A- I subscribed to most of the views.

Q- Yes, and in fact, ultimately, you found it necessary to resign from your honorary directorship in the -- in the Non-smokers Rights Association, didn't you?

A- It wasn't necessary. I did it as a decision of my own.

Q- Your decision -- you did it as a decision of your own. What do you mean by that? Why did you resign then? Why do you say you resigned?

A- Well, some might see the association between being an honorary director for that association and being a -- a federal advisor on health policy as a conflict.

Q- Yes. So, you resigned, then, because some people might see your interest that way?

A- That's correct.

Q- Yes. Of course, you, yourself, didn't think that there was any such conflict. You resigned simply because of appearances -- some might think so?

A- That's correct.

Q- Yes; and I'd like to show you your letter of resignation written on government stationery to the Non-Smokers Rights Association. Is that your letter, Doctor?

A- Yes.

Q- And you've directed it to Gar Mahood who is the executive director of the association?

A- Yes.

Q- And you've written it on the Health and Welfare Canada stationery?

A- Yes.

Q- And you addressed it: Dear Gar?

A- Yes.

Q- "I have served as an honorary director of the N.S.R.A. for several years now. I appreciate the invitation to serve on your board and I will continue to provide advice on smoking and health issues at your request in the future. However, I now wish to resign from the Non-Smokers Rights Association honorary board of directors. I'm doing this because although there is, in fact, no conflict of interest, there may be the appearance of a conflict of interest as follows."

Just stopping there. You -- you couldn't see that there was, in fact, a conflict of interest between a -- between the chief of the department of government that you were in, supposed to give dispassionate objective advice to your -- to your superiors and your minister, you couldn't see that there was any real conflict as opposed to an apparent conflict between your position in the department and the -- your position as an honorary -- as a member -- an honorary member of the board of the directors?

A- Well, the mandate...

Q- Is that correct?

A- The mission of L.C.D.C. is to prevent disease, and if it requires controlling tobacco to prevent disease, I don't

see that there's a conflict of interest, no.

Q- So...

A- In fact, it's a satisfaction of my duties.

Q- Exactly, that's -- that's the point that you made there. You didn't think there was any conflict...

A- I still don't.

Q- ...of interest and you still don't. You just can't see that there was any conflict and...

A- I know there was no conflict.

Q- Right, but you thought that you'd better resign because there was an apparent conflict?

A- That's correct.

Q- In other words, you didn't have the courage of your convictions that there was no conflict, you thought for appearances sake that you would resign?

THE COURT:

I don't...

Me EVRAIRE:

Was that a question or a statement?

THE COURT:

I don't think this is warranted.

Me EVRAIRE:

It's not a debate we're engaging in.

Me CHERNIAK:

Q- Well, what you conclude is, by saying critiques, and by

that I take it -- this is the very last sentence, you wrote the word critiques but I assume that you mean critics?

A- Yes.

Q- "May feel that my involvement with N.S.R.A., 1 of the many groups that advocates elimination of tobacco smoke in public areas, would influence my scientific objectivity in the assessment of health effects of second-hand smoke."

So, in effect, you were bowing to the pressure of those critics who might take that view, is that fair?

A- Well, you're saying I was bowing to pressure. I was under no pressure.

Q- Well, if you weren't under any pressure, why did you do it?

A- For the reasons stated in the letter.

Q- You didn't think that -- there's no one that asked you to do that?

A- No.

Q- You did it on your own? Just did it on your own?

A- That's correct.

Q- Yes. And the fact is, of course, that as we've seen some years earlier, you had already described passive smoke as a modern scourge, right?

A- If you can -- I don't understand your question.

Q- Yes, may we put this document in as the next exhibit?

THE COURT:

RJR-150, I believe.

Me CHERNIAK:

Oh, I'm sorry, I should have put the tobacco industry one as RJR-150.

BY THE CLERK:

And the letter RJR-151.

Me CHERNIAK:

Yes.

Me EVRAIRE:

Can my friend, perhaps, speak to the cover note. I don't know if it's part of it.

Me CHERNIAK:

I don't care about the cover note, I'm not -- I'm not...

Me EVRAIRE:

We've had enough paper, we'll leave the cover note out perhaps.

Me CHERNIAK:

Q- Now, I'm interested, Dr. Wigle, in the way that you use cause in your report and that's -- the causation issue is one that has gone through a lot of the evidence we've had here -- and in your report on page seven (7) and eight (8), you deal with -- with this issue.

Me EVRAIRE:

Just for reference sake, I don't think the witness has numbered his pages so if you bear with him and maybe give him the chapter number.

Me CHERNIAK:

Well...

Me EVRAIRE:

Well, if you want to take it slowly, we can do that. If you want to help him, it would help the process.

Me CHERNIAK:

I am -- I would help him, it's just hard to understand why the pages aren't numbered.

Q- Anyway, it's the -- it's the page -- it's the heading that says: "Is Criteria Used for Making Causal Judgements in Epidemiology". Do you have that?

A- Yes.

Q- And just for your reference, that's my page six (6) and I believe His Lordship's page six (6). And you refer at the bottom of page seven (7) to the criteria for causality being, I think you touched on it in your answers to Mr. Evraire this morning, as being the ones that you discussed above used by both the Surgeon General and I.A.R.C. and you say that these criteria for causality are the subsets of the criteria originally proposed by Bradford Hill, right?

A- Yes.
Q- And Bradford Hill was one (1) of the seminal epidemiologists in the field, wasn't he?
A- He was a biostatistician.
Q- Am I not describing him properly as one (1) of the seminal epidemiologists?
A- I would describe him as a very senior biostatistician.
Q- Well, he was doing -- he was doing what you call biostatistics before there was something called epidemiology, wasn't there? He was doing this in the forties (40s)?
A- Well, epidemiology is founded on biostatistics.
Q- Yes. And Bradford Hill was the one who Sir Richard Doll trained under, all the early works on smoking and tobacco were all Hill and Doll, weren't they?
A- The first report was Doll and Hill.
Q- Yes, and -- any rate, his -- the criteria that you told Mr. Evraire about were really Hill's criteria, weren't they?
A- Partially, yes.
Q- And then you refer to somebody called Rothman?
A- Correct.
Q- Reviewing Hill's criteria for causal inference in epidemiology -- yes?
A- Yes.

Q- And I take it that you subscribe to what Rothman said?

A- Well, Rothman's argument there are no...

Q- Please, sir, do you or not?

A- ...hard and fast rules.

Q- Do you subscribe to what Rothman said or not, that's all I want to know? This is your reference, you've given him as reference number five (5) in your paper. Do you subscribe to what Rothman says, is it authoritative?

A- I agree with what Rothman said about there being no hard and fast rules for causal inference.

Q- I see, well, you -- you see, you prepared a book of backup for your -- your paper. It's dated April nineteen eighty-nine (1989). It's called a "List of References" as the references to -- that are in your paper and Tab 5, which is the same as footnote 5 is -- is a chapter from Rothman, "Modern Epidemiology" -- and would I take it that you would agree that Rothman's chapter two (2), "Causal Inference in Epidemiology", which is your footnote 5 and included in your list of references, is authoritative?

A- Well, to be very specific, the...

Q- Excuse me, My Lord, I'm having a great deal of difficulty...

THE COURT:

Well, let him -- well, he hasn't said -- I don't know if

he was going to answer but...

Me CHERNIAK:

It's a simple question.

Q- Is it authoritative or not?

Me EVRAIRE:

Well, all of it or -- you know, my friend knows that the witness may accept parts of an article as being authoritative and parts not.

Me CHERNIAK:

This is his article. I mean, it's not one I'm putting to him.

Me EVRAIRE:

Well, let him answer. He's the one who put it in, you've asked him.

A- What I accept is what I state in my report, which is that both Rothman and Hill agree that there are no hard and fast rules for causal inference and that's why I'm citing this article to show where I got that from. It doesn't mean that I endorse everything that's in that chapter.

Me CHERNIAK:

Q- Well...

A- I don't even remember what's in that chapter.

Q- You provided us with -- with not just the page from where that quotation comes from, you provided us with

his entire chapter, "Causal Inference in Epidemiology". Are you saying that what Rothman writes isn't authoritative or is it?

A- My Lord, I think that I've already answered the question.

THE COURT:

Q- No, you haven't. The question is not whether you agree with everything that's contained in it. It's whether you agree that Rothman is authoritative as an epidemiologist. Especially in that part of the chapter, chapter number two (2), whether or not you agree it's authoritative, although you may or may not share all the views contained therein.

A- Well, I would -- I would agree Rothman in general is authoritative, and as I cite him specifically...

Q- In that chapter?

A- ... I agree that he's authoritative.

Q- I had suspected you did. Okay, we'll take a short break. Fifteen (15) minutes.

Me CHERNIAK:

And I'm going to ask that Your Lordship get a copy of this particular article, which is strictly reference, so that I can question the witness on it.

RECESS

Me CHERNIAK:

Q- Dr. Wigle, did you spend the first part of the break that we just had speaking to Dr. Turcotte?

10/0053 A- Yes.

Q- And did you discuss your evidence in this case?

A- No, we were talking about my great-grandfather being a tobacco farmer.

Q- Among other things, did you discuss the evidence in this case?

A- No, not specifically. He just said -- he reassured me that things were going fairly well.

Q- But did Dr. Turcotte ask you to get out something, to make mention of something, get something out?

A- No no, the -- Paul Evraire suggested that I could be looking at the Rothman article during the break.

Q- No suggestion was made to you that you get something out in evidence?

A- No. Oh, maybe about my grandfather being a tobacco farmer.

Q- I see.

A- That was just as a joke.

Q- Let's look at the -- at the Rothman article or chapter. It's at Tab 5 of the book that you have in front of you.

THE COURT:

This is your copy. I gather you have a copy for me?

Me BAKER:

That's all right, My Lord. That's an extra copy for the Court.

Me CHERNIAK:

Q- Have you a copy of the chapter in front of you?

A- Yes.

Q- Your type seems different than mine. Maybe this is just enlarged. Are we looking at the same thing?

A- Yes.

Q- There is a heading on page thirteen (13), bottom of page thirteen (13), that's called: "Abortion of disease due to specific causes". Do you see that?

A- Yes.

Q- And is that the type of thing that you were talking about when you -- when you talked about these ratios, thirty (30), thirty (30) and fifteen (15) and things like that, that are in the Surgeon General's reports, how much of a disease -- how much disease is caused by specific causes? Is that what that heading means, is that the type of thing that is being discussed?

A- Well, the heading suggests that. I haven't read the...

Q- But is that what you were talking about when you told us about this formula, this...

A- The population attributable risk percent?

Q- Yes.

A- Yes.

Q- Thirty (30), thirty (30), fifteen (15). That's the portion of disease due to specific causes. That's what that formula addresses, is it?

A- Yes.

Q- Okay. And if -- if we can just look at the next page, I want to ask you about the paragraph at the top of page fourteen (14). And Rothman says this:

"Recently, it was proposed that as much as forty percent (40%) of cancer is caused by occupational exposures. Many scientists argued against this claim ..."

-- and he names two (2) of them --

"One of the arguments used in rebuttal was as follows: "X" percent of cancer is caused by smoking, "Y" percent by diet, "Z" percent by alcohol and so on. When all these percentages are added up, only a few percent are left for occupational causes. This argument is based on a naive view of cause and effect which neglects interactions. There is in fact no upper limit to the sum that was being constructed. The total of the proportion of disease attributable to various causes is not 100% but infinity. Similarly, much publicly

attended pronouncement ..."

-- I'm sorry --

"... much publicity attended to the pronouncement that 90% of cancer is environmentally caused, by extension of the previous argument. However, it is easy to show that 100% of any disease is environmentally caused and 100% is inherited as well. Any other view is based on a naive understanding of causation."

Now, is causation the way that Rothman explains it? Is that what you mean by "causation" as well?

A- Causation implies that a factor, either as a necessary or a contributing cause of disease. Rothman is saying several things, sir. First of all, he says if you don't allow for interactions, you can get -- you can account for more than a hundred percent (100%) of the disease, which is true. To say that it could be infinity, I think, is -- might be theoretically possible, but doesn't sound too likely; and to say that you could show that a hundred percent (100%) of disease is environmentally caused and a hundred percent (100%) is inherited is absurd. That might be true in isolation in theory but in practice, we never see that.

Q- But the point is when you talk about "X" percent of --

of deaths by cardiovascular disease being caused by smoking, you don't mean to say that that's the only cause that might be associated with the deaths of those -- of that number of people, do you?

A- Well, in the -- I was citing for different numbers. For example, the U.S. Surgeon General who was stating thirty percent (30%), our own Canadian data which suggests something very close to that. And in the Canadian data, we did adjust for other risk factors and furthermore it's been shown, for example, and particularly in the cardiovascular disease, that if you adjust for any potential confounder, you barely change the relative risk for smoking, suggesting that smoking is truly an independent risk factor.

Q- But I'm not suggesting that. What I'm suggesting to you is that it's not -- that the numbers of -- the various causes that contribute, the various risk factors that contribute to death by heart attack, by cardiovascular disease, doesn't equal a hundred (100). If you total up all these percentages, they would be significantly more than a hundred (100), wouldn't they?

A- Well, in the Canadian data, it comes out at around sixty percent (60%) if we include smoking, high cholesterol, high blood pressure and diabetes, which are the factors that are significantly related to coronary heart disease

in our own study. The total of the four (4) came out around sixty percent (60%).

Q- But the fact is that...

A- Not infinity.

Q- ... that all of the people who were smoking, who died of cardiovascular disease that were smokers, all of them had one (1) or more -- sometimes several more -- of a variety of other risk factors, didn't they? They were obese, they had diabetes, they had a family history or the like? Isn't that so?

A- It's true that many of the people who develop coronary heart disease have more than one (1) risk factor, but it's also true that smoking multiplies the effect of the other risk factors.

Q- That's not the question I'm asking you, Doctor. Let's just stick to the question I'm asking. The fact is that if we take "Y" number of deaths from cardiovascular disease and say that "X" number -- that "X" percent is related to smoking, if we are able to look at the -- at the histories of the number represented by that "X" percent, we would find that all or virtually all of them had one (1) or more other risk factors operating as well, wouldn't we?

A- We find, for example, that about twenty percent (20%) would have elevated serum cholesterol and about twenty

percent (20%) have elevated blood pressure, we find that those two (2) account for all the effective obesity. But obesity without hypertension or diabetes is not a significant predictor of death. So the -- in fact, there would be some smokers who would die of coronary heart disease without having any other risk factor, and there'd be some with one (1), some with two (2). There's only three (3) major risk factors.

Q- Well, there's a number of risk factors, though. Heredity is certainly a risk factor for coronary heart disease; isn't it?

Is it or not, Doctor?

A- Well, you can't answer that question simply yes or no.

Q- How about me?

A- Heredity is important two (2) ways. One is family history, which may or may not mean genetics. And there is in the population a few percent of people have very high cholesterol levels which is truly on a genetic basis, but they only count for a small fraction of all the coronary heart deaths.

Q- But, Doctor, just laymen often say when talking about life expectancy -- and certainly insurance companies always do: how old were your parents when they died, and what did they die of? Insurance companies always do that, don't they? They want to know that.

A- They may do it, but they also ask questions on smoking habits and blood pressure and diabetes.

Q- Sure. But surely, Doctor, heredity, whether your parents died at a young age of cardiovascular disease, that's important, that's a risk factor, isn't it?

A- Well, the fact is that the age at which your parents died is a predictor, but it doesn't prove it's genetic. It could be the shared lifestyle. For example, if you were Mormon and your parents were Mormon, you would probably not be a smoker, therefore if they would live to an old age, you probably would do. It doesn't prove it's genetic. It could be a common lifestyle. It's often assumed to mean genetic, but it's not true.

Q- And is obesity a risk factor for coronary heart disease, Doctor?

A- Obesity is, but only as expressed through hypertension and diabetes. If you control for hypertension and diabetes, obesity is not a significant predictor of coronary heart disease.

Q- So these people with -- carrying around a hundred (100) pounds of excess weight or even fifty (50) pounds of excess weight, the fact that they have to work a lot harder, that their heart has to work a lot harder to keep all that going, is just irrelevant in your view?

A- I just go by what we observe in our data. And I come

back to the cardiovascular deaths in the Nutrition Canada Cohort when once we controlled for hypertension and diabetes, obesity was not a significant predictor of death.

Q- So any doctor that tells a patient that is significantly overweight, but doesn't have diabetes and who doesn't have high blood pressure, that patient shouldn't be told to lose weight; it doesn't matter. It's not a risk factor.

A- Well, there's many other conditions related to obesity, such as osteoarthritis and gallstones, so that in another context, the advice makes good sense. But in terms of coronary heart disease, you can be obese and normal blood pressure and no diabetes and your risk is not significantly elevated.

Q- High blood pressure is a risk factor?

A- Definitely.

Q- Yes. Stress is a risk factor?

A- Not proven.

Q- Some people think so?

A- Lots of people think so, but it's not proven.

Q- At any rate, if we took the percentage of all those risk factors and applied it to the number of -- to all the people that have died -- that die of coronary heart disease, we'd get a figure of over a hundred percent

(100%) if we added up all the percentages, wouldn't we?

A- We don't. We get around sixty percent (60%).

Q- The other forty percent (40%) have got to die of something, don't they? They die of coronary heart disease because they've got one or more risk factors for it, don't they?

A- Well, we have problems with measurement, for example. The cholesterol levels may be changing over time. We can measure sixty percent (60%), the truth could be higher.

Q- At any rate, when Rothman, in the reference that you've given us at footnote five (5) and Tab 5, when he says that:

> "Any other view of causation is based on a naive understanding ..."

-- he's right, isn't he? At the very last sentence.

A- I think he's overstating his case to make a point.

Q- Yes. All right. Now...

THE COURT:

Are you finished with that?

Me CHERNIAK:

Yes, I am. Thank you.

THE COURT:

Are you giving it a number or...

Me CHERNIAK:

I think we probably should. I don't want the whole book in, just that article.

THE COURT:

Do you know the extracts which you referred to.

THE GREFFIER:

RJR-152.

THE COURT:

Well, you should give me a copy.

Me CHERNIAK:

It's not an RJR exhibit, it's really a government document.

Me EVRAIRE:

Well, might as well produce it.

THE COURT:

It's not an exhibit. I haven't seen this before today. I'm not provided with the literature you are provided with.

Me CHERNIAK:

I see. All right. Well...

Me EVRAIRE:

Well, actually, just for background, these books were put together so our friends wouldn't be hunting around the country for them. It was a matter of convenience, and if my friends want to put them in, as we are now

doing, it should be marked as an RJR exhibit, of course.

THE COURT:

I understood that. That way.

Me CHERNIAK:

Fine. Whatever. Let's get on -- move on.

THE COURT:

Maybe you could make a copy and ...

Me CHERNIAK:

We will made a copy, sir.

THE COURT:

...and put it...

Me CHERNIAK:

Q- Now, would you agree, Dr. Wigle, that diet is a major cause of cancer?

A- In -- some aspect of diet does appear to be important in cancer, but our knowledge is very limited as to exactly what that is.

Q- And that cholesterol, high levels of dietary cholesterol are associated with increases in the rate of lung cancer?

A- Increased rates of lung cancer?

Q- Yes.

A- Actually, quite the opposite. In -- people with very low cholesterol have an increased cancer risk, particularly men, and the site mainly responsible is

lung. In fact, low cholesterol in men has been associated with increased risk of lung cancer.

Q- Okay. You're familiar with the witness who gave evidence here a couple of weeks ago, Anthony Miller?

A- Yes.

Q- Do you know him?

A- Yes.

Q- And do you consider what he says and what he writes authoritative?

A- Most of what he writes is very authoritative.

Q- Yes. And he has in fact been a reviewer of many of your publications when they've been submitted for review, peer review, before publication, hasn't he?

A- I don't know because the names of the reviewers aren't revealed to us as authors.

Q- Now, I want to show you -- I want to show you an article by Dr. Miller, which unfortunately we didn't have when Dr. Miller gave evidence here the other day. It's by Miller and others, because it just came out in nineteen ninety (1990). Dr. Miller didn't refer to it and we didn't have it, but we have it now, and I want to ask you a bit about it; and this is an article in the International Journal of Cancer. Is that a recognized peer review or publication?

A- Yes, it is.

Q- And it's from volume forty-five (45) published in nineteen ninety (1990). So it just came out. Yes?

A- Apparently, yes.

Q- I take it you're not familiar with this, because you haven't read it yet.

A- No.

Q- Or perhaps you have?

A- No, I haven't

Q- Right. I want to ask you a few things about it to see whether you do or do not agree with some of the things that are stated.

Me EVRAIRE:

My Lord, this is a six (6) or seven (7) page article the witness says he hasn't seen before. I wonder if my friend might defer his examination of this until the witness has had time to read it over lunch. It's, I think, a lot to absorb while one is being cross-examined. I think that's being unduly fair.

THE COURT:

It depends on what questions he has to ask.

Me EVRAIRE:

Okay. Yes.

Me CHERNIAK:

Let's see how we get with it. If the witness needs some time, that's fair.

Me EVRAIRE:

Yes, but, I think if the witness feels uncomfortable, he should tell the Court and...

A- It will depend on the question.

Q- It depends on the question.

Me CHERNIAK:

Q- Yes. The article appears to be related to what we're talking about: Dietary Factors and the Risk of Lung Cancer, results from a case controlled study in Toronto, between nineteen eighty-one (1981) and nineteen eighty-five (1985). It appears to be on top, does it not?

A- Yes.

Q- And the abstract which is at the start of the article indicates generally what was -- what was being done: "Associations between dietary factors and the risks of lung cancer are reported from a study of 839 cases and 772 population based controls interviewed in metropolitan Toronto between 1981 and 1985."

Yes?

A- Yes.

Q- All right, now...

Me EVRAIRE:

Well, excuse me...

THE COURT:

Is that a question?

Me EVRAIRE:

Is that a question...

Me CHERNIAK:

I just wanted...

Me EVRAIRE:

We can read as well as my friend.

Me CHERNIAK:

Right. I just want to make sure that my -- that the witness is with me.

Q- Now, let's look at some of the findings; and if we go to the -- to the page two ninety-one (291) -- and this is under the heading of "Discussion". Let's just start it a little earlier. Let's go to page two ninety (290) -- and if we go to the right-hand column. Just to get the picture, let's look at the first sentence under discussion. This is in the left-hand column on page two ninety (290).

"The 2 major dietary findings from the present study are the inverse association of risk with vegetable intake and the positive association with dietary cholesterol."

Do you see that?

A- Yes. It's dietary. I was referring earlier to serum

cholesterol, which shows the opposite association.

Q- Well, I'm talking about dietary cholesterol and I said dietary cholesterol.

A- Well, there is that difference.

Q- Yes, and let's look up at the right-hand -- right-hand column about...

THE COURT:

Can I -- can I interrupt, I'm sorry. What's the difference between serum cholesterol and dietary cholesterol?

A- Well, serum cholesterol is what we actually measure in your blood which there is little relationship to the amount of cholesterol in your diet. It's much more closely related to the total amount of saturated fat in your diet, so that dietary cholesterol does not tell us what your serum cholesterol will be in general terms.

Me CHERNIAK:

Q- But it's certainly diet that contributes to serum cholesterol levels, does it not?

A- Saturated fat in particular.

Q- Yes.

A- Not cholesterol.

Q- People who have high serum cholesterol levels are advised to change their diet, aren't they?

A- Yes, and they -- you can get a small reduction in serum

cholesterol based on diet alone.

Q- But what I'm talking about here is the effect of diet on lung cancer, that's what I'm questioning you about. Let's go to the right-hand column on page two ninety (290), about seven (7) lines down. The authors say this:

"There is evidence in the present data ..."

And I assume that means the data that they collected in this study.

"... for associations between smoking and dietary intake. Smokers, in general, have a higher consumption of fats, protein and cholesterol and lower intakes of fruits, vegetables and vitamins from these sources than do non-smokers."

Do you see that?

A- Yes.

Q- And that's simply because the habits of smokers, the eating habits of the smokers tend to be different than the eating habits of non-smokers, right?

A- Well, it's not an area that I'm an expert in so I can only accept what the author states.

Q- It sort of accords with common sense too, doesn't it?

A- Well, there are other differences. For example, smokers...

Q- Does it accord with common sense...

Me EVRAIRE:

Well, let him answer Mr. Cherniak, please.

A- Smokers...

Me CHERNIAK:

Surely, My Lord...

Me EVRAIRE:

I know it's -- My Lord...

Me CHERNIAK:

...I'm entitled to a question -- to an answer to my question. It's a simple question, can be answered yes or no.

THE COURT:

Yes, but...

A- Well, there are other differences. For example...

Q- Just a minute. I didn't even follow you where you were reading from. I was trying to figure out where.

Me CHERNIAK:

It's about seven (7) lines down from the top of the right-hand -- from the right-hand column on two ninety (290), sir.

THE COURT:

There is evidence?

Me CHERNIAK:

"There is evidence in the present data for

associations between smoking and dietary intake. Smokers, in general, have a higher consumption of fats, protein and cholesterol and lower intakes of fruits, vegetables and vitamins from these sources than do non-smokers."

THE COURT:

Right; and what was the question to the witness?

Me CHERNIAK:

And what the witness said was he's really not an expert in what people eat and don't eat and I suggested to him it accords with common sense. That was my question. Now, he can either say no, it doesn't accord with common sense or yes it does accord with common sense and then I'll move on to the next question. I don't need a speech. I don't think the witness is entitled to give a speech about something I didn't ask him.

Me EVRAIRE:

Well...

Me CHERNIAK:

All I asked him was does the suggestion there accord with common sense or not.

Me EVRAIRE:

Well, let's talk about common sense. He's putting an article to the witness the witness has never seen.

There's a lot in here. I think if the witness needs to explain himself, that's only fair. We're not trying -- the object of the exercise here is to assist the Court. It's not a case of trying to trick somebody. If the witness needs to explain himself, I think he should be permitted that courtesy.

THE COURT:

What did you answer, first of all, to the question?

A- The common sense?

Q- Right.

A- I don't have a gut feeling of, you know, what the common sense position would be. I know that earlier studies on smoking showed, for example, that smokers have lower levels of Vitamin C in their blood despite similar levels in their diet and, in fact, the hypothesis raised was that Vitamin C is destroyed more rapidly in people who smoke, that it wasn't the dietary difference that was responsible. I'm not aware of many studies that this -- I'm not aware of any studies that have -- that have really zeroed in on the dietary differences between smokers and non-smokers. The only study I saw was several years ago. It was based on a Nutrition Canada survey and, at that time, they thought the Vitamin C differences in blood from smokers and non-smokers was more due to the -- some biochemical difference between

smokers and non-smokers than the amount they actually ate in their diet. So if Dr. Miller is postulating something different today, I presume he's doing that based on the data he collected in this study and I presume that statement is true.

Me CHERNIAK:

Q- Doctor, it is true is it not, that smokers differ from non-smokers in ways that are likely to be related to the risk of various diseases. That's a true statement, isn't it?

A- The main differences that I'm aware of are differences in alcohol, seat belt use and sedentary activity. That smokers as a group tend to drink more, to do less exercise and to not use seat belts. Those are the major differences that I'm aware of.

Q- So the answer to my question is: yes, that's true. That statement is true?

A- But only in a limited sense.

Q- Well, you said: "seat belts, alcohol and..." what else?

A- Physical activity.

Q- And what this article tends to indicate is: "and in diet."

A- Well, this one article does, but I'm aware of another article which felt that the dietary intake was very similar, at least for Vitamin C.

Q- Okay. Let's move on. The top of the next paragraph. Let's see whether you agree with this one or not.

"The finding of a negative association of lung cancer risk with foods high in Vitamin A, particularly beta carotene, or with vegetable intake is one of the more consistent findings from epidemiological studies of cancer."

Do you agree with that statement?

A- Yes.

Q- Now, let's move on to page two ninety-one (291), next page, bottom of the left-hand column. Two (2) case controls -- this is the authors reviewing certain case control studies.

"2 case control studies from Hawaii have reported positive associations of lung cancer with dietary cholesterol."

And then it gives the names of the two (2) studies. One in nineteen eighty-three (1983), one in nineteen eighty-eight (1988).

"In the most recent study, that is the 1988 study, using a more complete diet history than the first study, the effect was seen primarily in male smokers with squamous cell carcinoma. This contrast with the findings of the present study, in which the effects are very similar

for men and women and for smokers and non-smokers and, if anything, are stronger for adenocarcinoma as compared with squamous cell carcinoma.

However, as in the present study, the Hawaiian study, and that is the 1988 study, found the risk essentially restricted to those in the highest quartile of a consumption."

And then it goes on to say, two (2) sentences down:

"The Hawaiian study found similar risks for cholesterol and fat intake which they were unable to separate."

And then moving down to the second to last sentence in that paragraph:

"Thus, today the evidence from analytic epidemiologic studies supports the existence of a positive association between dietary cholesterol and increased lung cancer risk. Though this is not reflected in data on serum cholesterol levels."

Do you see where the authors say that?

A- Yes.

Q- Yes. So that it appears that there is some relationship between the dietary fats that smokers tend to use more than non-smokers and lung cancer risk -- that's the

conclusion that this paper comes to, isn't it?

A- The paper states that the evidence from this study supports the existence of a positive association between dietary cholesterol and increased lung cancer risk, though this is not reflected in data on serum cholesterol levels, which is quite a large discrepancy, which could be possibly explainable, but when you have a large number of studies showing that people with low serum cholesterol have an increased risk of lung cancer, especially men, now this study claiming that high dietary cholesterol is related to an increased risk of lung cancer, it clearly points to some confusion about the dietary component.

Q- Well, of course, the dietary component might not be the cholesterol, it might be the nature of the fats that go into dietary fat. Mightn't it?

The point is that there's the correlation there. What the cause of it is is still open; isn't that the point?

A- Well, we're getting a relative risk of one point five (1.5) for men in the highest quartile of cholesterol intake, which is quite modest compared to the smoking effects.

Q- Yes. Doctor, you've done more than one, maybe several studies, on drinking water and its relationship to

cancer, haven't you?

A- Yes.

Q- And you have found that drinking water can be and often is in water supplies, mutagenic -- yes?

A- Chlorinated drinking water is mutagenic, yes.

Q- Yes. And, of course, there isn't too much drinking water that we use in Canada that isn't chlorinated, is there?

A- That's correct.

Q- Do you agree with the proposition that diet, along with smoking, is the most important variable with regard to cancer risk?

A- I would argue that smoking is the major specific known cause of cancer, accounting for about thirty percent (30%) of all cancer deaths. The estimate for the role of diet, which comes mainly from the work of Doll and Peto, is quite wide, ranging from -- the point estimate was thirty-five percent (35%), but their confidence, so-called confidence limits on that was something like twenty (20) to seventy percent (70%) and, more importantly, we don't know what aspect of diet to change to give a net reduction in cancer risk. Whereas, with tobacco, it's much more clear.

Q- Well, is the -- is it a correct proposition that -- that the two (2) most important variables are diet and

smoking?

A- Well, it's a bit difficult to accept the diet as being up there with tobacco with our current state of knowledge. It -- certainly from Doll and Peto's work, it looks like diet is a major factor, possibly as important as tobacco, but we don't know whether that means cooking methods or -- or what it means. We can't recommend to the public more than very general statements like reducing total fat intake, reducing total calories, eating fresh fruit and vegetables and that type of thing, whereas -- and possibly that will give some reduction in cancer risk but we can't predict just how big that will be.

Q- Tell me when you're finished, Doctor, I've got a question for you. Doctor, I'm just trying to find out what you meant when you said -- when you used -- said in your own words the proposition that I'm putting to you. I'm showing you an article that you authored, you're the lead author on it, in nineteen eighty-six (1986) in the Canadian Medical Association Journal called "Cancer Patterns in Canada." Did you write such an article?

A- Yes.

Q- Let's make that the next exhibit right now.

BY THE CLERK:

RJR-153.

Me CHERNIAK:

Q- And would you look at the bottom of page two thirty-one (231) in the right-hand column, very last paragraph.

"Epidemiologic research has shown that the risk of cancer varies enormously between countries and between population subgroups, defined by such variables as sex, age, occupation and lifestyle."

Did you write that?

A- Yes.

Q- Is that true?

A- Yes.

Q- "There is considerable evidence that at least 80% of human cancers in the United States and undoubtedly in Canada as well, are caused by modifiable factors, of which cigarette smoking and diet are the most important."

Did you write that?

A- Yes.

Q- Is that true?

A- That's true, but if we go to the discussion...

Q- Is it true or not, Doctor?

Me EVRAIRE:

All right, let him...

A- Well, it's part of an article which has to be read in

its entirety.

Me CHERNIAK:

Q- Let's see what you said. Let's go to page two thirty-five (235), the second -- the very last paragraph. Did you write this:

"Although diet is believed to be an important risk factor for cancer, Doll and Peto ..."

-- and you refer to their nineteen eighty-one (1981) study of the causes of cancer, which is already in evidence here --

"... estimated ..."

-- this is Doll and Peto --

"... estimated that thirty-five percent (35%) of cancer is attributable to diet."

Now, just stopping there for a moment. Are you contesting Doll and Peto's estimates? You -- you're the one that referred to it -- are they wrong?

A- Well, the point I'm trying to make is the rest of the sentence, which is that it has been proven more difficult to study than tobacco.

Q- First of all, Doll and Peto clearly estimated thirty-five percent (35%) of cancers are diet related. They did that, didn't they?

A- That's what I stated previously.

Q- And you don't criticize that finding anywhere in this --

anywhere in this report, do you?

A- Well, this sentence here that you read part of is exactly that point.

Q- You -- you discuss it, do you criticize it?

A- What I state is that:

"... although diet is believed to be an important risk factor for cancer, (35%), it has proven to be more difficult to study than tobacco smoking."

Q- We're not talking about the difficulty of studying it. I'm asking you whether you do or do not accept Doll and Peto's estimate that thirty-five percent (35%) of cancers are caused by diet? Do you accept it or not?

A- I accept it with the range -- the confidence range that they put on it which is very wide. It could be much less or much more.

Q- Yes, confidence -- wide confidence ranges certainly make one think twice about accepting figures, don't they, Doctor? The figures -- estimates have to be read with the confidence ranges, don't they?

A- Yes.

Q- Yes.

"Nevertheless ..."

-- you say --

"... the epidemiologic evidence points towards

increasing consumption of dietary fiber and vegetables rich in Vitamin A along with decreasing fat consumption as a way of reducing the risk of cancer."

Did you write that?

A- Yes.

Q- And was the fat consumption that you were talking about when you wrote that the same kind of fat consumption that Miller was talking about in the last paper we just read?

A- The context of that statement was not in terms of lung cancer but it was in terms of...

Q- Cancer generally.

A- ...breast and large intestine where the role of dietary fat is believed to be important.

Q- Can we now get to my question? My question was when you use the word fat, fat consumption, was that the same kind of dietary fat consumption that Miller was talking about in the article we just looked at or is it some other kind of fat consumption?

A- The figure of thirty-five percent (35%) is based mainly on the association...

Q- I'm not talking...

A- ...between dietary fat and breast involved cancer and not lung cancer.

Q- I'm not talking about the figure of thirty-five percent (35%), I'm trying to find out whether your words -- fat consumption -- are the same as what Miller and others were talking about, as best you can tell, when they compared the dietary factors that they referred to in -- in their paper that we just looked at, the nineteen ninety (1990) paper?

A- They were referring to dietary cholesterol, not fat.

Q- But they were talking about dietary cholesterol from eating fat, from eating foods high in fat, that's what they were talking about. I'll just find the reference here in a moment.

A- They were talking mostly about dietary cholesterol.

Me EVRAIRE:

Well, this is why I rose earlier to say that the witness should have an opportunity to look at the article. If my friend wants to put precise questions involving it....

Me CHERNIAK:

Q- Look at page...

Me EVRAIRE:

This witness has not looked at that article...

Me CHERNIAK:

Q- Look at -- look at page two ninety (290).

Me EVRAIRE:

...anymore than we have this morning.

Me CHERNIAK:

Q- Look at page two ninety (290) of the Miller article, would you please? Look at the right-hand column and we just read this earlier, right-hand column, seven (7) lines down from the top, maybe ten (10) lines down from the top:

> "There is evidence in the present data for association between smoking and dietary intake. Smokers, in general, have a higher consumption of fats, protein and cholesterol and lower intakes of fruit."

Is that higher consumption of fats, protein and cholesterol, is that the same thing you were referring to in your paper, the one I just read to you?

A- The significant association that they report is mainly with dietary cholesterol, and that's different than what we mean from dietary fat.

Q- They used the word fat, you used the word fat. Are we talking about the same thing?

A- But if you read the abstract, they refer to dietary cholesterol, not fat.

Q- I can't get a straight answer out of your witness, let's move on.

You have found that -- you've said that one (1) of the causes of -- one (1) of the diseases that smoking contributes to is bladder cancer?

A- Yes.

Q- And you have found that saccharin causes bladder cancer, yes?

A- Who has found?

Q- Haven't you said that?

A- Well, toxicology studies in our department showed that saccharin causes bladder cancer in rats but I didn't do that work.

Q- Well, but you have accepted that saccharin causes bladder cancer. I don't mean that you found it in your research, you have reviewed the research of others that refers to the relationship between saccharin and -- and bladder cancer?

A- In rats.

Q- In people?

A- The evidence in people is -- is overwhelmingly negative. There's only been one (1) positive study -- well, the main positive study was the one done by Miller but it's never been replicated.

Q- Do you remember a report by somebody called Howe on the positive association between the use of saccharin and bladder cancer among men?

A- That's the Howe and Miller paper.
Q- Yes; and you remember that one (1) of the things -- one (1) of the findings in that paper was that there appeared to be a -- a higher risk of bladder cancer and associated with saccharin in men but not women?
A- That's correct.
Q- Yes; and that that fact seemed to -- would make one wonder as to whether it was the saccharin or not because it's hard to understand why the same substance would cause bladder cancer, or be associated with bladder cancer in men but not women? Remember, that was one (1) of the criticisms of that finding?
A- Yes.
Q- Yes; and do you remember that you pointed out in a letter to The Lancet concerning that study that the absence of evidence of the -- of saccharin causing bladder cancer in women was not a strong argument because sex, specific non-hormonal carcinogens are well known from studies of carcinogenesis in animals?
A- Yes.
Q- Do you remember pointing that out?
A- Yes.
Q- So that you -- you were -- you didn't find it a valid criticism of the findings that saccharin only appeared to act in men rather than in women? Those things happen

in nature, right?

A- I didn't find that a valid criticism but these -- the other studies that have been done on bladder cancer have failed to replicate the Howe and Miller result. So that would convince me more than the argument about sex specificity.

Q- But you have found and written that marital status seems to affect risk of cancer?

A- Yes.

Q- Single, divorced, widows have a higher risk for cancer?

A- That's true...

Q- Yes.

A- ...mainly smoking

Q- Single women, divorced women and widows have a higher risk of cancer, right?

A- Especially smoking-related cancer, and it's been shown that single, divorced -- single and divorced women have a higher smoking rate than married women.

Q- Well, you've also related it to their diet and their alcohol consumption, haven't you?

A- Those would be other differences.

Q- Well, you -- you have written, I suggest to you, and you tell me whether you're wrong, that the dietary and drinking habits of single and widowed and divorced persons could contribute to their relatively high risk

of certain cancers?

A- Yes.

Q- And certainly you have found that occupation is associated with the cause of a variety of cancers?

A- Yes.

Q- You found, for instance, that aluminum workers have an increased risk of both bladder cancer and lung cancer?

A- The work that we did identified that there was a high risk of bladder cancer in the Chicoutimi region. It was work by Gilles Thériault and his colleagues so that it was a case control study which showed that employment in the pot room at the smelter and cigarette smoking were independent risk factors for bladder cancer in that group. Our work really just provided the lead for Thériault.

Q- Did you find or not that aluminum workers had a higher risk for both bladder cancer and lung cancer?

A- Our own work did not show that. All we showed was that men who lived in the Chicoutimi region have a high risk of bladder cancer, and aluminum refining is the main -- was the main suspicious industry in that area because we already knew that that process involved release of carcinogens. But it was only the work of Thériault and his colleagues that actually proved that both employment in aluminum and smoking were risk factors for bladder

cancer in that area.

Q- Right; and did you either find or review work that indicated that roofing workers exposed to coal tar and pitch had a -- and benzene had an elevated risk for both bladder cancer and lung cancer?

A- Yes.

Q- And, of course, asbestos workers are well known to have a higher risk of lung cancer, just if they're smoking or not, right?

A- They have a high risk especially if they smoke. The risks tend to multiply, but they are independent causes.

Q- And...

THE COURT:

It's that time to break for lunch.

LUNCH ADJOURNMENT

In the year of Our Lord nineteen hundred and ninety (1990), on this twelfth (12th) day of the month of March, PERSONALLY CAME AND APPEARED:

Me CHERNIAK:

For RJR, Earl Cherniak and Michel Pinsonneault.

Me POTTER:

For Imperial, Simon Potter.

Me EVRAIRE:

Pour le Procureur général, maîtres Baker, Joyal, Williams et Evraire.

In the year of Our Lord nineteen hundred and ninety (1990), on this twelfth (12th) day of the month of March, PERSONALLY CAME AND APPEARED:

DONALD T. WIGLE,

WHO, having previously made a same solemn declaration, doth depose and say as follows:

CROSS-EXAMINATION BY Me EARL CHERNIAK, Q.C. (CONTD),
On Behalf of Petitioner, RJR-Macdonald Inc.:

Q- Dr. Wigle, just dealing with your association with the Non-Smokers Rights Association for a moment again, I want to just give you a little bit of history as to what preceded your November nineteen eighty-seven (1987) resignation from that organization. Do you remember, in the early fall or late summer of nineteen eighty-seven, that a study by Simon Fraser University professors came out, suggesting that second-hand smoke wasn't very dangerous?

A- Yes, that would be the study by Arundel and Sterling.

Q- Yes. And were you correctly quoted by the Canadian Press on September third (3rd), nineteen eighty-seven (1987), as saying, and I'm quoting from the Canadian Press article:

"The study is fertilizer. I think you should shred it and put it on your roses, said Donald Wigle -- Dr. Donald Wigle of the Health Department."

16/0073 5 Were you correctly quoted?

A- That interview was with Steve Kerstetter of Canadian Press and we discussed the Arundel and Sterling paper for about twenty (20) minutes, because one of our staff had reviewed it. And I said that comment to him 10 jokingly, because I've done many interviews with him, and I was tremendously surprised that he ran it.

Q- So is the answer to my question, Doctor: yes, I was correctly quoted by the reporter that wrote that story? Is that the answer to my question, yes?

15 A- The answer is yes, but I didn't state it in a serious way.

Q- And do you remember that Neal Collishaw was interviewed for the same article and his name was used in the same story?

20 A- I don't really remember it, but it sounds vaguely familiar.

Q- And do you remember that David Sweener, the lawyer for the Non-Smokers Rights Association was also interviewed and said something adverse to Sterling?

25 A- That rings a bell.

Q- Yes. And do you remember that following that story, that Mr. Neville, on behalf of the Canadian Tobacco Manufacturers Council, complained about that story to Dr. Liston? Did you became aware of that?

A- No.

Q- Well, this is a -- one of the government productions. I'd like to show it to you and just tell me whether you know anything about this, because your name is mentioned in it. Maybe that you don't. I'm showing you a letter dated September eighth (8th), nineteen eighty-seven (1987), from the Canadian Tobacco Manufacturers Council to Dr. Liston -- and it's got a copy of this, of the Canadian Press story that I referred to attached to it.

Me EVRAIRE:

My Lord, I just want to... I think before my friend gets into that, I think we need to make the point. My friend has referred to this as a government production. It's one of the documents that was available with Mr. Collishaw's office. I think the use of the words "government production" might suggest that it was a production by the Crown in this case, which it was not.

Me CHERNIAK:

I'm not sure I understand the difference, My Lord, but I don't think it makes a difference. Surely the original of this letter -- there is no doubt the original of this

letter landed up on Dr. Liston's desk and presumably a copy of it in Mr. Collishaw's office, but I don't care how it got there, it got there.

Q- And Dr. Liston is described in Mr. Neville's letter as the assistant-deputy minister of the Health Protection branch. Was he correctly described in September nineteen eighty-seven (1987)?

A- Yes.

Q- And did that make him superior to you?

A- Yes.

Q- How did the chain of command go from him through to you?

A- From me, it would...

Q- Was he your immediate superior or...

A- No, there was two (2) in between. There was a bureau director and a director general in between.

Q- Yes.

A- But I never saw this letter.

Q- And -- well, you will see in this letter that you and Collishaw are specifically named in it, being questioned about it. The letter says:

> "Has either Wigle or Collishaw seen the actual study. Is it your department's view that Wigle's comments in particular represent the level of debate at which such questions as these are to be pursued by public officials?"

And -- now, were these concerns of Mr. Neville ever brought to your attention?

A- No.

Q- Never heard about them?

A- That's correct.

Q- Is the first time you ever heard about this complaint today?

A- No, I heard in the briefing with the lawyers before my testimony that there was such a letter and that it might come up.

Q- They never had any complaint about using that comment: this study is fertilizer?

A- I'm just trying to remember what did happen. Actually, at the time I remember being surprised that there wasn't more of a fuss raised, because it's not the sort of thing that -- the quotation was not the sort of thing that, you know, government officials are supposed to do and I expected more reaction at the time.

Q- Well, we haven't had Dr. Liston here yet, but I understand that he is to testify, am I correct?

A- M'hm.

Q- Yes. So I want to show you some documents that will be put in when Dr. Liston comes to testify, as they are letters or documents that come from Dr. Liston and, My Lord, I'll have to undertake to put these in if the

witness can't identify them. I want to get his comments on them.

THE COURT:

Maybe what you could do is give him a number subject to confirmation by Dr. Liston.

Me EVRAIRE:

A number for identification is...

Me CHERNIAK:

And perhaps we can do that with the last letter, because that's a letter to him which we'll put in through Dr. Liston, so if we can give them a number for identification.

THE COURT:

I will just -- yes, put a note to that effect.

Me CHERNIAK:

The first one will be the letter to Dr. Liston.

THE CLERK:

Okay. RJR-154?

Me EVRAIRE:

Well, no, excuse me, I think we should not make them part of the normal. Maybe #1 and 2 for identification.

Me CHERNIAK:

Why don't we call it RJR-A so it will distinguish it from the numbers. So that will be an identification letter as opposed to number. Would that be sufficient,

sir?

THE COURT:

As you wish.

Me CHERNIAK:

And then can we make the next document that I'm going to put to the witness RJR-B?

Q- I'm showing you -- first of all, would you turn to the handwritten note as a part of RJR-B. Do you see it?

A- Yes.

Q- Is that a handwritten note that appears to be from Dr. Liston, it's on Health and Welfare Canada stationery. It says assistant deputy minister, Health Protection branch, that is Dr. Liston?

Me EVRAIRE:

Well, with respect, I think we can all read. I don't know that this witness is any more competent than Mr. Cherniak to make that inference. I think we can all accept that it says that. But I don't know who the initials are. We should leave that for Dr. Liston to testify about.

THE COURT:

Maybe he knows.

Me CHERNIAK:

Q- Well, do you recognize Dr. Liston's signature or not?

A- That looks like his initials.

Q- Thank you. And who is Dr. Somers that this note appears to be addressed to?

A- At that time he would have been director general of the Environmental Health Directorate.

Q- And where is he in relation to being your superior?

A- He's not. He's in a separate branch.

Q- And you say that Dr. Liston says in this note to Dr. Somers:

> "Please prepare a reply in which we acknowledge the intemperate nature of our reply to media queries. At the heart of this unfortunate event is the continuing failure to realize that we cannot be both advocates and scientific advisors."

Do you see where Dr. Liston says that?

A- Yes.

Q- Now, let's look at what -- at the letter signed by Dr. Liston, apparently drafted by -- is it Dr. Somers?

A- Yes.

Q- Apparently drafted by Dr. Somers in response to that memo to Mr. Neville.

> "Dear Bill:
>
> Thank you for your letter of September 8th, 1987 ..."

-- and that refers to RJR-A --

"... I too was disturbed to see the press quotations from our staff on the Weinkam Sterling study ..."

That's the same one we talked about; right? Yes?

That's the one in the press report, Weinkam Sterling?

A- I think -- there was a third author though, Arundel, which seems to have been dropped from this group.

Q- Does it look like we're talking about the same press report and the same study?

A- Well, it's the same press report, but it's not clear that the article's correctly cited.

Q- Let's move on.

"I too was disturbed to see the press quotations from our staff on the Weinkam Sterling study on second-hand smoke. Let me say at the outset that we abhor, as you do, the pernicious argument of guilt by association. This issue has been discussed with our staff and they have been made clearly aware of the views of the branch. "

Now, what I take it, and we'll have to ask Dr. Liston when he comes, what Dr. Liston is saying is that his staff, being the person who made the press quotations, who are Collishaw and Wigle, have had the issue discussed with them and they have been made clearly

aware of the views of the branch.

Now, assuming that's what it means, Dr. Wigle, and as I say, the author will have to tell us, do you still say that the matter was not discussed with you as it appears to have -- as Dr. Liston appears to have told Mr. Neville that it was -- or does that refresh your memory?

A- I had no -- I did not discuss this matter with either Dr. Liston or Dr. Somers. I did have one discussion sometime in that fall with Dr. Losos who is director general of L.C.D.C. where I work, and he did not refer to this letter but he did indicate that he had discussed the matter of my quotation with Dr. Liston but the letter was never mentioned.

Q- So having now seen this, it does refresh your memory that your intemperate remarks contained in the Canadian Press Council Report were, indeed, discussed with you by one (1) of your superiors, is that so?

A- I don't actually recall the conversation I had with Dr. Losos as to exactly what was said. I know that he conveyed the -- the impression that Dr. Liston was not happy with the press quotation but that's about as far as it went.

Q- And then -- and then on November fourth (4th), nineteen eighty-seven (1987), you wrote the letter that's already

in evidence as RJR-151, a little better than a month after Mr. -- the minister -- the deputy minister's letter -- assistant deputy minister's letter to Mr. Neville, a little better than a month later, you wrote Mr. Mahood resigning from the Non-Smoker Rights Association, is that the chronology?

A- Yes, I wrote the letter on November the fourth (4th).

Q- Yes, okay. Now, Dr. Wigle, you have done studies over the years dealing with various risks factors for -- for -- about death and disability among Canadians, have you not?

A- Yes.

Q- And, for instance, you did one (1) in nineteen eighty-seven (1987) dealing with risk factors applicable to Eastern -- residents of Eastern Ontario called the "Eastern Ontario Risk Factor Survey"?

A- Yes.

Q- And can you tell us what the purpose of that survey was?

A- We developed in L.C.D.C. a telephone...

Q- A what?

Me EVRAIRE:

In L.C.D.C.

A- We developed in L.C.D.C., which is where I work, a telephone survey whereby local public health units could interview by phone a sample of their population to

identify the level of different risk factors in their jurisdiction. For example, seat belt use, use of the pap smear for preventing cervical cancer, smoking habits, drinking habits, exercise and so on; and this survey was eventually carried out with our help in about twelve (12) different communities across the country. Eastern Ontario was one (1) area.

Q- And let me list for you the risk factors for death and disability that were part of this survey and you tell me whether this sounds right? Seat belt use, blood pressure/hypertension awareness, physical fitness, cigarette smoking, alcohol consumption, socio demographic education/employment, cancer screening in women. Does that sound like the list of risk factors that was used in the questionnaire?

A- Some of those are risk factors. The socio demographic information was not considered risk factors.

Q- Well, it's pretty well known that there are many diseases that are -- are significantly related to socio economic status, isn't it?

A- Yes, but that's primarily because the direct risk factors, such as smoking and other factors are also related to education and income.

Q- Any rate, it was your view then and it still is that all of those are risk factors for Canadians, am I correct?

A- Some of those are risk factors. Some were just socio demographic characteristics.

Q- And were you involved in a study in nineteen -- in the mid-nineteen seventies dealing with the -- the incidence of lung cancer in -- in two (2) Canadian cities, two (2) Ontario cities, Sarnia and London?

A- Yes.

Q- And you did that study and published a paper on it alone, did you not?

A- Yes.

Q- And I'm going to show you the paper because I want to ask you just a few questions about it. I'm showing you a paper published in the Canadian Journal of Public Health in nineteen seventy-seven (1977), and let's just look at the abstract.

Me EVRAIRE:

Excuse me, do you have -- my copy seems to be missing the second page. Are you going to be referring to it? I don't think there's any four sixty-four (464) in the witness' copy either.

Me CHERNIAK:

I don't have page four sixty-four (464) either, so I'm not going to be referring to it. So we're in the same position.

Me EVRAIRE:

In fairness, my friend, sometimes they have an advertisement on the page that may be missing. Maybe if you can determine if it was not part of the text.

Me CHERNIAK:

Well, no doubt there is a page four sixty-four (464) but for some reason, I don't have it. I don't know why I don't have it but it may be an advertisement.

THE COURT:

Well, Mr. Mitchell, what's happening here.

Me EVRAIRE:

Maybe the witness can tell us since it is own...

Me CHERNIAK:

Q- Well, I'm trying to see the continuity between page four sixty-three (463) and four sixty-five (465) and it's possible that it is -- there is continuity there but I'm not certain, maybe you can look at it and tell me?

A- There was -- that page was the text, part of the methods and the first part of the results is missing but we may be able to deal with it anyways.

Me EVRAIRE:

Well, I suggest we...

Me CHERNIAK:

I was not going to, obviously, refer to the page that I have missed from the study, My Lord.

Me EVRAIRE:

Well, could we just find it and do it tomorrow then, it would be simpler?

Me CHERNIAK:

We'll get the additional page but I wonder whether I can question the witness now on anything that turns on the additional page.

THE COURT:

Oh, yes and if -- if the witness feels that there is some information missing, we could have him complete his answer tomorrow.

Me CHERNIAK:

Q- I just want to see whether, first of all, the abstract in the left-hand column fairly sets out what you found and I'm going to -- let's just read it together.

"The lung cancer mortality experienced of 2 Canadian cities, Sarnia and London, was 28% and 1% respectively of the male labour force employed in petroleum refining or chemical industries was studied by a review of death certificates. Significant excesses of lung cancer deaths were observed for Sarnia women and London men. Male lung cancer death cases were compared with randomly selected male deaths due to causes, except lung cancer

controls, matched for city, age and period of death. Lung cancer was significantly associated with birth in continental Europe and major lifetime occupation. The excess of lung cancer deaths in London men was largely confined to residents of low income census tracts. Increase of risk of death due to lung cancer were observed for guards or watchmen and persons employed in the armed forces, furniture manufacturing, rubber and plastics fabricating, motor vehicle repair shops, insurance and real estate and barber shops. That the presence of petroleum refining in the chemical industries in Sarnia was not associated with increased risk of death due to lung cancer in either the general population or occupationally exposed men."

Is that a fair summary of -- of what you found?

A- Yes.

Q- And if you look at page four sixty-seven (467), looking at about the -- the center of the page, about six (6) lines down from the first main paragraph, it starts on that page.

"The relatively high risk of lung cancer noted for certain occupations might be partially due

to differences in smoking habits but data were not available to test this possibility directly."

A- Right.

Q- And just look over the previous page, page four sixty-six (466). You're talking about the lung cancer mortality rates and this is on the right-hand -- the last paragraph in the right-hand column.

"Lung cancer mortality rates were significantly high in Sarnia women and London men but not in the opposite sex in either city. The excess in London men could be at least partially due to occupational exposures but the excess in Sarnia women is difficult to explain."

You wrote that?

A- Right.

Q- And you never did find an explanation for that, did you?

A- No, not yet.

Q- Now, that, of course, was based on death certificates, that study was based on a survey of death certificates, am I correct?

A- Yes.

Q- And am I correct that it is sometimes difficult to depend upon death certificates for studies of this

nature because they are inaccurate?

A- Well, that's often alleged, that where we have checked and linked death records to, for example, to cancer registry records, we've found that the level of agreement, particularly in the area of cancer, is very good. The main problem with death certificates is among the very elderly where they often have more than one (1) disease and it can be a bit difficult to decide whether the person died of their cancer or their secondary pneumonia or the stroke they had or the diabetes that they may have had.

Q- Well, for instance, you did a study of mortality in nineteen -- in the early nineteen eighties (1980s) in the municipality called Maniwaki?

A- Yes.

THE COURT:

Before we move to this one, are you giving a number to...

Me CHERNIAK:

I'm sorry, sir, I should have.

BY THE CLERK:

RJR-154.

THE COURT:

1?

Me CHERNIAK:

Which reminds me, sir, I did not give the Miller article that was referred to this morning a number, the nineteen ninety (1990) Miller article, and I do wish to give that a number, I should have done it at the time. Can we do that now while I...

BY THE CLERK:

RJR-155.

Me CHERNIAK:

For the Miller article.

Me POTTER:

The dietary factors.

Me EVRAIRE:

I wonder if I could ask if my friends, if he finds -- or when they find four sixty-four (464), we might simply attach it to the -- la page qui manque, if we could just add that to the record then for completeness tomorrow.

THE COURT:

No problem.

Me CHERNIAK:

Yes.

THE COURT:

Maniwaki.

Me CHERNIAK:

Q- I'm showing you a copy of the Maniwaki study in the

Canadian Journal of Public Health in nineteen eighty-four (1984). That's a study that you, among others, were involved in?

A- Yes.

Q- And the background that led up to that study was that Maniwaki had a significantly high number -- higher number of deaths than would have been expected for such a population?

A- Yes.

Q- Yes.

A- Right.

Q- And -- so a study was done to try to determine why that was, yes?

A- Yes.

Q- And if we look at page four thirty-two (432), one (1) of the explanations that you found to be present was what you have described in the heading as "Quality of Diagnostic Data". Do you see that -- when I say you, I mean you and the others?

A- Right.

Q- And there appeared to have been two (2) sources of diagnostic error in the mortality -- mortality statistics, one (1) in the cause of death section of the certificate, and you say:

"... because the physician did not know the

cause of death or secondly because there was imprecise documentation of the cause of death or thirdly because the physician failed to adhere to the rules regarding the designation of antecedent and associate causes."

So those three (3) errors were identified in the death certificates reviewed, not all of them -- not all of them in each one but those errors were all identified in the study, am I correct?

A- On some of the death certificates, yes.

Q- I'm not suggesting that every death certificate was in error but the -- the problem was that some of that -- that a significant number, enough that it was worth mentioning as one (1) of the explanation for the excess in mortality, was in the quality of diagnostic data?

A- Actually the overall mortality rate was what really led us into this study and the diagnosis wouldn't effect the overall death rate. It would only affect the disease specific death rates.

Q- All I -- the only point that I'm making at the moment, doctor, is that in this study, it was found that there were the significant errors in the recording of the causes of death, yes?

A- Well, when you say significant, the -- for example, the first error was only found on two (2) records. The

second one was found on some of the circulatory disease records, particularly among older people. The ...

Q- Well, I don't know where you -- where you find that there were how many errors under each one? We have the -- the researchers indicating that three (3) kinds of diagnostic -- the three (3) kinds of errors in the death section of the certificate. You may point this out to me if you can find it but I don't see that there is a listing as to how many of each error there was?

A- No, the -- the main problem addressed by this paper was the geographic coding of the deaths not the cause of death.

Q- The point is, Doctor, that there were these three (3) kinds of errors in death certificates in just one (1) community, were there or weren't there?

A- There was some errors and the most common ones were among the older folks, as it's well known.

Q- Yes, and then -- then the researchers also pointed out that there may well have also have been errors in diagnosis in transcribing information from the medical record to the death certificate? That's less certain, the researchers put it as -- the writers put it as being only conceivable as opposed to documented as in the earlier causes? Yes?

A- Yes.

Q- And then there were other errors in the coding of the underlying cause of death. That's the hospital coding that goes to the central records in the provincial government?

A- Yes, there is a six percent (6%) error.

Q- Yes. And of course, it's these mortality records that are used ultimately by Statistics Canada and by people like you to draw epidemiological conclusions as to causes of death across the country, aren't they?

A- Well, we use death records and cancer registry records, we use hospital records. Sometimes we are fortunate enough to be able to link the mortality and the cancer registry records and verify the diagnosis, and when we do this, depending on the type of disease and the age range, there is a greater or lesser error.

Q- Okay, but there are errors and it's well known that there are errors in the compilation of mortality rates, because there are errors in the death certificates, and this study simply demonstrates what some of them are, right, among other things?

A- There are errors, but whether they bear materially on the results or not is another question.

Q- Okay, thank you.

THE COURT:

Q- The cancer registry is -- registers only cancers?

A- Every time a person is diagnosed to have cancer, it's reported to the Provincial Cancer Registry and it's usually backed up by pathology information on the type of tumour and so on. So it's quite reliable. Sometimes with the death certificates, that type of information is not available and there can be errors in attributing the cause of death.

Q- But the cancer registry only registers cancer?

A- Yes.

Q- And every time there is a cancer which is diagnosed, it is reported to the cancer registry?

A- Yes, this is true in every province.

THE COURT:

I'm sorry, Mr. Cherniak.

Me CHERNIAK:

Thank you.

Q- Now, Doctor, I've got a couple of questions to ask you about -- about...

THE COURT:

Are you giving a number to the Maniwaki experience.

Me CHERNIAK:

Oh yes, please. Yes. Thank you, sir.

THE CLERK:

RJR-156.

Me CHERNIAK:

Q- I've got a couple of questions to ask you about lung cancer, Doctor. You did a study in nineteen -- in the nineteen seventies (1970s), which was published in something called "Cancer Patterns in Canada", in which you estimated that the probability of a smoker dying due to lung cancer before age seventy-five (75) was about six point eight percent (6.8%).

A- Well, that was the probability for the average Canadian male. It's now eight point eight percent (8.8%), the average Canadian male.

Q- No, no. No, no, I'm not talking about the average Canadian male, I'm talking about smokers. I suggest to you that what you found was -- and you tell me if I'm wrong and I'll show you the publication, if we have to -- six point eight percent (6.8%) chance of getting -- probability of getting lung cancer for a man who smokes cigarettes.

A- If that was the case then...

Q- Before age seventy-five (75).

A- ... it's certainly no longer the case, because the average Canadian male today, smoker or non-smoker, has an eight point eight percent (8.8%) chance of dying of lung cancer, and of course that's mainly among smokers. So the true risk for smokers would be well over ten

percent (10%).

Q- Well, let's look at what you actually wrote. Article of nineteen seventy -- I was going to sixty-nine ('69), I think it's nineteen seventy-seven (1977), Canadian Journal of Public Health. I'd like you to look at page one nineteen (119), in the left-hand column, about one third of the way -- one quarter of the way down the page, second full paragraph on the page:

> "The probability at birth due to lung cancer before age 75, was 3.7% for men. If one assumes that the prevalence of cigarette smoking is 50% among the Canadian men aged 15 to 74 and if the relative risk of death to lung cancer among cigarette smokers is 12, then a simple calculation indicates that the probability of death due to lung cancer before age 75 is approximately 6.8% for a man who smokes cigarettes."

Did you write that?

A- That would be approximately true for nineteen -- the latest death data we had available at that time...

Q- Please, Doctor, is that what you wrote?

A- ... was nineteen...

Q- Is that what you meant at that time?

A- This is based on data that are twenty (20) years old.

The cancer, lung cancer rates have increased dramatically since that time, so the current probability is much higher.

Q- But of course, Doctor, cigarette smoking has significantly reduced, hasn't it? It is not true that fifty percent (50%) of the Canadian men aged fifteen (15) to seventy-four (74) smoke, is it?

A- Well, seventy -- roughly seventy-seven percent (77%) are current or ex-smokers, and that's where most of lung cancer risk is.

Q- Doctor, is it true that fifty percent (50%) of the Canadian males smoke at the present time?

A- It's closer to thirty-five percent (35%) or something like that.

Q- Yes, and going down?

A- Right, but it takes longer for the cancer, lung cancer rates to go down.

Q- Did you read Dr. Doll's evidence?

A- Yes.

Q- Dr. Doll says that after, between ten (10) and fifteen (15) years virtually -- of cessation of smoking, virtually all of the excess risk of lung cancer is gone. Do you remember reading that?

A- Well, what he said was that when smokers quit smoking, their risk of lung cancer is approximately frozen and

that they avoid the increase that they would have experienced if they continued to smoke.

Q- That's not what Dr. Doll said, but I guess we'll let Dr. -- what Dr. Doll said speak for itself. Do you disagree with what you understood -- with what you read Dr. Doll to say?

A- Well, he said that the risk fell to that of a non-smoker. The risk does not fall.

Q- It said it fell to practically the level of a non-smoker. That's what Dr. Doll said. If you'd like, we can turn it up, but that's what he said.

A- Well, I believe that both Dr. Miller and Dr. Doll said that the risk is frozen and that with time, approximately fifteen (15) years, the risk of lung cancer among people who've never smoked catches up almost to that of people who have quit.

Q- So that the risk in a person who has quit smoking in some period, around ten (10) to fifteen (15) years, becomes approximately equivalent to the risk of lung cancer in a person that never smoked? Do you agree with that statement?

A- It's still higher. There's a residual excess risk, but on a single graph it looks like the two (2) risks are converging.

Q- All right. Doctor, your studies have shown that

Canadian Indians have lower rates for lung cancer, even though -- than occasions -- even when they smoke heavily?

A- Well, what we haven't been able to adjust for is the duration, the pack-years of smoking among the native Indians.

Q- Doctor, apart from what you've been able to adjust for, do your -- does your research indicate that even heavy smoking of Canadian Indians, for unexplained reasons, have lower rates of lung cancer than non-Indians?

A- Native Indians are much like non-native women in that they probably took up smoking later than non-native men and they haven't experienced...

Q- Doctor...

A- ...the large increase in lung cancer that they will experience.

Q- Do you find it impossible to answer my question?

A- I can't answer it yes or no.

THE COURT:

Well, it's because when you write something, you say, you have a proposition and then it's there. The question is put whether or not you had found something. The answer is either yes or no, you found that. You may say then after that: yes, I did find that, but now it has changed. That's -- but at least you answer the

question first before giving the explanation. What you're doing is giving the explanation without answering the question yes or no. We assume that you say yes, but you have to say it before explaining why you now say that there may be variances.

Me EVRAIRE:

His Lordship will permit you to explain, but you must answer the question.

THE COURT:

First.

Me EVRAIRE:

Exactly. No one will stop you from explaining.

Me CHERNIAK:

Q- Is the answer: yes, Canadian Indians, even heavy smokers, have lower lung cancer rates than non-Indians?

A- Canadian Indians have lower lung cancer rates.

Q- Now, is there something more you want to say?

A- But you added heavy smokers and heavy smokers could mean long-term smokers.

Q- I think we did not put the last paper in?

THE COURT:

No.

Me CHERNIAK:

So the Cancer Patterns in Men. Can we give that a number?

THE CLERK:

RJR-157.

Me CHERNIAK:

Q- And then did you do a study in the nineteen eighties (1980s) which you published under the heading: "Socio Economic Disparities and Risk Factors for Cardiovascular Disease?"

A- Yes.

Q- It's at twenty-five (25), I guess.

And just so I don't forget, can we make that the next number, sir?

THE CLERK:

RJR-158.

Me CHERNIAK:

Q- And this was published in the Canadian Medical Association Journal in nineteen eighty-six (1986), is that correct?

A- Yes. Yes.

Q- And the reason for that study in the first place you set out in the very first sentence of the abstract:

"Despite a general decline in mortality rates in recent decades, these rates are substantially higher among lower socio economic groups."

A- Yes.

Q- And what you wanted to do was try to get a handle on why that was?

A- Yes.

Q- And then if we can just go to the body of the article, look at the second to last paragraph on the right-hand side of page one twenty-seven (127), the first page of the article.

"We examine the prevalence of risk factors associated with cardiovascular disease by socio economic group in the Canadian adults to determine target groups for preventive, top promotion programs. The risk factors considered were cigarette smoking, overweight, obesity, elevated diastolic blood pressure, physical inactivity, excessive alcohol consumption, elevated serum cholesterol, diabetes and the conjoint use of oral contraceptive and cigarettes."

Obviously the latter one, only in women?

A- Yes.

Q- Yes. And then let's look at page one twenty-nine (129) under the heading: "Results." And look at the last paragraph on the right-hand side.

"Among men aged twenty (20) to sixty-nine (69) years, the largest relative differences in

risk factor prevalence between the education groups were found for smoking, obesity, physical inactivity and excessive alcohol consumption."

Now, those were the major risk factors among men that you found?

A- Those are the risk factors we're studying. They're not all major risk factors for cardiovascular disease.

Q- Well, they're certainly what you found to be the relative difference in risk factor prevalence between the various education groups. You divided socio economic status to be equivalent with education, I take it. Did you?

A- The only point I was trying to make was this: these were the major differences, but they aren't all major risk factors for cardiovascular disease. For example, alcohol consumption, it's still not clear what alcohol does for the risk of cardiovascular disease, if anything.

Q- Well, let's look at what you found. Let's go on.

"Among women in the same age group, the largest relative differences were found for smoking, overweight, obesity, elevated diastolic blood pressure and physical inactivity."

I take it that you found that people in lower socio -- with lower education had more of those risk factors.

A- Yes.

Q- In other words, they were more obese, they were more overweight, they had higher blood pressure, they had less physical activity; yes?

A- Yes.

Q- And what you found was based on those findings if we look at the second to last paragraph on the left-hand side on page one thirty-one (131), under the heading: "Discussion." About halfway down that paragraph:

> "Nevertheless, the results indicate that people with less education are likely to be at increased risk for cardiovascular disease. This conclusion is supported by the observation that among both men and women the rates of death from ischemic heart disease are substantially higher in low socio economic groups in Canada."

A- Yes.

Q- And then you go on to say:

> "The pattern of risk factor prevalence that we have identified have implications for health promotion programs in the epidemiological analysis of current trends in cardiovascular

disease. From a health promotion perspective it appears that risk factors such as overweight, elevated diastolic blood pressure, smoking, elevated cholesterol level and physical inactivity are wide-spread in the general population. Socio economic class gradients for cardiovascular disease risk factors are more apparent for obesity, smoking and physical inactivity. The influence of socio economic class and the prevalence of elevated diastolic blood pressure appears to be greater in women."

Now, surely, sir, you are saying that all of those things are risk factors for cardiovascular disease; aren't you?

A- But they aren't equally important.

Q- Well...

A- Yes.

Q- Whether they're equally important or not...

A- They're all...

Q- ...they're all risk factors, aren't they?

A- Well, they've all been labelled as risk factors, but some of them are closely related. For example, obesity, lack of exercise are closely related, because obesity is a function of diet and exercise. And diastolic blood

pressure is intimately linked to obesity. The other -- of course the other consideration is that smoking, cholesterol and blood pressure are the three (3) major risk factors and that socio economic disparities in those three (3) risk factors would be more important than disparities in the other ones.

Q- But the point is, sir, that many of those things exist in the same individual. The kind of individual who is likely to be obese is probably likely to have a high blood pressure, not necessarily, but likely. More likely than if he isn't. Am I correct?

A- Yes, but the prevalence of these risk factors varies widely. For example, smoking upwards of forty percent (40%), elevated diastolic blood pressure only twenty percent (20%).

Q- Sir, I didn't ask you about the variety. I'm only asking you about whether it is true that there is the relationship between these factors. That people who have one are more likely to have another?

A- Well, if only five percent (5%) of people roughly have an elevated cholesterol and even if all of them were -- even if you took a group of smokers, only a few percent of them would have elevated serum cholesterol. So it's not like there's a great chance that any one person will have all the risk factors. In fact, it's most likely

that they'll have smoking or be overweight.

Q- No, but it's likely, isn't it, that people with cardiovascular disease have several risk factors? That's what is likely, isn't it?

A- Well, they will have one or more risk factors than if -- the greatest chance is that they'll be smokers and then the next one would be overweight, and then the next would be high blood pressure. But it's not like a hundred percent (100%) of them will have all the risk factors.

Q- Do you agree with Dr. Doll when he told us in this courtroom that the greatest proportion of cardiovascular disease is due to the unsatisfactory diet habits of people with average blood cholesterol and that the question of diet is the greatest single factor for cardiovascular disease. Do you agree with that?

A- Not based on our own studies using Canadian data, no.

Q- So you do not -- you remember Dr. Doll saying that, and you just disagree?

A- Well, I think the point he was trying to make on cholesterol is that it's not the very high elevations that account for most of the risk, it's the lesser elevations because they're more common.

Q- I'm not talking about cholesterol. What Dr. Doll said was that the single most important thing or factor with

respect to cardiovascular disease was the unsatisfactory diet habits of people. Diet is the greatest single factor. That's what Dr. Doll said. Do you agree or disagree?

A- I don't agree for the same reason I indicated this morning, which is that in our own study the proportion of deaths attributable to smoking, cardiovascular deaths in Canadians was greater than that for any of the other major risk factors. In fact it was greater than that for high blood pressure and high cholesterol combined.

Q- So do I understand, sir, that you and Dr. Doll disagree?

A- If he's saying cholesterol is the most important factor in cardiovascular disease, then I'm...

Q- Why don't you listen to my question. My question...

A- Then if that's what he's said, then I disagree with him.

Q- My statement was that Dr. Doll said, and if you like we can look up precisely what he said...

Me EVRAIRE:

Well, maybe we should then, since there's some confusion.

Me CHERNIAK:

Q- He said that diet was the most significant factor in cardiovascular disease.

A- And what I'm saying is: if that's what he said, I don't agree.

Q- Fine. Thank you. Just as long as we understand.

Now, the last thing that you spoke about in your evidence this morning was this study or studies that you said led to the conclusion that there's about thirty-five thousand (35,000) deaths in Canada in every year due to tobacco. That's what you said in your report and that's what you say now; am I correct?

A- Yes.

Q- Right. Now, I want to spend a little time on that.

And you referred in your report today to certain tables. And just so we'll make sure that we get them, they -- this was dealt with in your report at page thirty-four (34) and the tables are at page eighty (80) and page eighty-one (81). Am I right?

A- Table 5.1 and 5.2?

Q- Yes. And what I want to know is if these tables come from an article that you and Collishaw and Tostowaryk published in the Canadian Journal of Public Health in *nineteen eighty-eight (1988)*?

A- Yes, that's the footnote at the bottom of the table.

Q- Yes. Reference thirty-two (32), number thirty-two (32), and that is this very article, yes? Yes?

Me EVRAIRE:

Does he have the article there?

Me CHERNIAK:

Q- Is this the article here?

A- I already said yes.

Q- Now, rather than look at this in your report, for the moment I'd like to look at it in the context of this article, and I just want to make sure that I understand what this article purported to do, just so we can understand it though, I'll relate it to your report and for me, just for identification, can we make this the next RJR exhibit?

THE GREFFIER;

RJR-159.

Me CHERNIAK:

159?

Q- If we look at Table 1 at page one sixty-seven (167), is that the same as the table at page eighty (80) of your report?

A- Well, there's an error in the article. The point two one three (.213) under the total column should be -- appear under women. That's the population attributable risk figure, the top figure in the right-hand column should be moved one column to the left.

Q- Subject to that, is it the same table?

A- We didn't include the confidence limits in the report here.

Q- You didn't include the confidence limits, exactly. Apart from the error that you told me about...

THE COURT:

What error? I'm not following.

Me CHERNIAK:

You see at page one sixty-seven (167).

THE COURT:

Right.

Me CHERNIAK:

Your Lordship, you see the number in the total column point zero two one three (.0213).

THE COURT:

M'hm.

Me CHERNIAK:

That figure should be moved one (1) column to the left under the...

THE COURT:

Under women?

Me CHERNIAK:

Under women.

Q- That was just a transcription error, I take it, was it?

A- Yes.

Q- And in the table in the article you have confidence levels included, which you did not bother to include in your report, Table 5.1. Yes?

A- They're not in the table. I don't remember whether they're in the text or not.

Q- Well, they're not in the table but they are in the publication in the Canadian Journal; am I correct?

A- Right.

Q- And just so we complete this, Table 2 is the same as, maybe more complete than, the Table 5.2 in your report.

A- Yes, the -- in the report I did not include the standard errors.

Q- All right. Now...

THE COURT:

You did not what?

A- The figures in brackets in Table 2 in the Canadian Journal of Public Health article are the approximate confidence limits plus or minus, for example, one o seven (107). I did not include those numbers in the table in the report.

Me CHERNIAK:

Q- Now, I just want to make sure I understand how these figures came to be. I understand that Table 1 and Table 2 are two (2) different ways of getting to the approximately thirty-five thousand (35,000) figure; right?

A- There are two (2) -- several different ways that you can arrive at a number close to that.

Q- Well, there were only two (2) ways that were used in this article.

A- I mentioned another method this morning.

Q- I know you mentioned -- I know you mentioned. I'm talking about the two (2) ways that are mentioned in this article.

A- Yes.

Q- And Table 1, just so I understand it, first of all, takes the relative risk for ever smokers of dying from some tobacco-related disease; is that correct? Is that what it is?

A- Not exactly no. The relative risk of dying for any reason in the age range thirty-five (35) to seventy-nine (79) during the ten (10) year follow-up period.

Q- I see. So it's the relative risk of dying from anything. If you're an ever smoker, you have a relative risk of one point seven four (1.74) of dying from anything.

A- Compared to people who never smoked, right.

Q- Yes. And can we know, because I don't think you told us, what was the definition of ever smoker?

A- Current or ex-smokers.

Q- Yes, okay. Well, obviously we know what a current smoker is. And an ex-smoker means anyone who smoked what? One (1) cigarette, ten (10) cigarettes, a

thousand (1,000) cigarettes, a hundred (100) cigarettes; what was the definition used?

A- The definition would be that used in the Nutrition Canada survey.

Q- Which was?

A- I don't recall exactly. Often what is done is a hundred (100) or more cigarettes in a lifetime.

Q- We've got the Nutrition Canada survey, let's look at it. I think it's important. We should know what that is. If you don't know what it is, let's find out.

This is the Nutrition Canada survey.

THE COURT:

It was filed?

Me CHERNIAK:

Q- I take it you don't have the Nutrition Canada survey in front of you?

A- No.

THE COURT:

It was filed.

Me CHERNIAK:

I'm sorry? If not, I think we have another copy of it here.

Maybe we could have a break?

THE COURT:

Ten (10) minutes.

SHORT RECESS

Me CHERNIAK:

My Lord, we asked the very same question of Mr. Collishaw on the examination before discovery, to tell us what the original Nutrition Canada survey definition of "ever smoker" was, and Mr. Collishaw didn't know, and there was an undertaking by Mr. Baker to provide the definition and if we have Mr. Baker's reply to that undertaking, we don't have it here. I don't know whether Mr. Baker ever replied to the undertaking, but we'll find that out overnight and -- but it would be possible for the federal government to produce from its records the document which is Nutrition Canada National Survey, and I'm reading now so the record knows, from this ten (10) year follow-up study by you and others.

THE COURT:

That's the eighty-three ('83)?

Me CHERNIAK:

No, the ten (10) year follow-up study is the nineteen eighty-seven (1987) article, but the actual original study, which the definition comes from, is the Department of National Health and Welfare Nutrition Canada National Survey, catalog number H58-36/1973, Information Canada, Ottawa, nineteen seventy-three (1973). So I would ask, so that we'll be able to have

this definition, I'd ask if the Attorney General could get that survey and have it here tomorrow morning, in answer to the undertaking that was given on the examination for discovery.

23/0094 Me EVRAIRE:

Well, we'll get instructions to see if we can get that. I'm not under oath, the witness is, so let me just...

Me CHERNIAK:

No, but if my friend wants, I'll refer him to where Mr. Baker made the undertaking. Would you like me to do that?

Me EVRAIRE:

Well, the discovery is not part -- we're in the trial now, so let's deal with the question now. If the witness doesn't have the answer, he can undertake to try to find that before tomorrow morning.

Me CHERNIAK:

No, no.

Me EVRAIRE:

As we have done with other witnesses. It's not complicated, so...

Me CHERNIAK:

No, what I'd like is I'd like the Attorney General to satisfy the undertaking.

Me EVRAIRE:

Well, my friend is raising it a bit late. I wish he'd told me before this afternoon.

THE COURT:

Be that as it may...

Me EVRAIRE:

Yes.

THE COURT:

... he's going to check and as usual...

Me EVRAIRE:

Exactly.

THE COURT:

... they're good enough at it, so...

Me EVRAIRE:

Dr. Wigle, if you could make a note to...

Me BAKER:

I'm not gowned, I can't say anything.

THE COURT:

M'hm?

Me BAKER:

I'm not gowned, I can't say anything.

THE COURT:

I'm not hearing you.

Me EVRAIRE:

Does the witness understand the question put to him, so

that he can make inquiries for the purpose of answering the question of what a smoker is under that survey?

A- For the matter of whatever is stated in the original Nutrition Canada report, the...

Q- Do you know the inquiry you have to make this evening or tomorrow morning?

A- Yes. I can say that it's not going to make much difference because whether or not people who smoke less than a hundred (100) cigarettes were included in the never smokers is not going to change the relative risk materially.

THE COURT:

Q- That's not the question. It's whether you can get it.

Me EVRAIRE:

So you understand the question of the inquiry you have to make before tomorrow morning, Dr. Wigle?

A- Yes, but I don't know that...

Q- All right.

A- ... it's stated in the original report.

Q- Well, we will deal with the answer tomorrow if you can find it.

THE COURT:

We have here the two (2) -- the eighty-five ('85) and the eighty-three ('83) reports, don't we, and have you checked in there? I don't have the numbers right off

the bat, but...

Me CHERNIAK:

I don't know whether we do or not, but Mr. Collishaw said on the discovery that the definition in this paper that we're looking at now, this nineteen eighty-eight (1988) article, that the definition of never smoker was taken from the nineteen seventy-three (1973) Nutrition Canada survey. So whatever the definition was, that's -- that's what I want to know.

Q- But I take it, Dr. Wigle, that even though you have used that figure, at least that -- that concept in your -- in your Table 1 and 2 as to what an ever smoker or a never smoker is, you can't now tell us what you meant by that?

A- Well, I can tell you that people who ever smoked would be everyone except never smokers, and never smokers would either be defined as people who literally never smoked or never smoked as much as one hundred (100) cigarettes or more. And the difference in risk between the two (2) groups is essentially non existent, so it would not affect the relative risk at all. So we could find out the definition...

Q- The difference in risk...

A- ... but it won't change the relative risk.

Q- The difference in risk between ever smokers and never smokers is no difference?

A- The difference between smoking zero (0) cigarettes and a hundred (100) is so small that it would not affect the relative risk.

Q- But the point is there is some -- there must be some difference between smokers and never smokers. All I want to know is what's the cut-off point.

A- I'm saying ever smokers is everyone except never smokers, okay? Never smokers can be defined one (1) of two (2) ways: people who literally never smoked -- but in many studies the definition is people who never smoked as much as a hundred (100) cigarettes or the equivalent weight of pipe tobacco.

Q- Sure, but there are people around that might have smoked three hundred (300) cigarettes in their lifetime and quit at age twenty (20).

A- Then they would be called ex-smokers.

Q- Yes, exactly.

A- Right.

Q- Exactly. Anyway, we'll find out what the definition is, but I just want to make sure that I'm reading Table 1 correctly. The proportion of people in Canada that are ever smokers, in your definition, are almost seventy-eight percent (78%) of the entire population of Canada aged thirty-five (35) or more?

A- Aged thirty-five (35) to seventy-nine (79).

Q- Aged thirty-five (35) to seventy-nine (79).

A- Seventy-eight percent (78%) of the men, forty percent (40%) of the women.

Q- Forty percent (40%) of the women, all right, but of course...

A- This has been verified in other studies.

Q- I see, but of course the -- if we use -- if we simply wanted to know how many people were smoking, were current smokers at the time that this study was done, the *percentage would be considerably smaller?* About thirty-five percent (35%) for men and less for women, right?

A- Yes, but the risk is spread between the current and ex-smokers.

Q- Am I right, if we just looked at current smokers, that the figure would be considerably less?

A- I said yes.

Me EVRAIRE:

And then he explained.

Me CHERNIAK:

Q- And if we looked at the current smokers and, say, smokers or ex-smokers who hadn't smoked for ten (10) years, it would also be less than seventy-seven percent (77%), wouldn't it?

A- If you looked at current smokers and...

Q- And smokers who hadn't smoked for ten (10) years -- or ex-smokers who hadn't smoked for ten (10) years?

A- Well, it has to be less than seventy-seven (77%) or seventy-eight percent (78%).

Q- All right. Then what's been done here is there is something called the population attributable risk.

A- Correct.

Q- And that was based on whose calculation?

A- Same formula that we referred to this morning, which is the prevalence of exposure times the relative risk minus one (1), divided by that same figure plus one (1).

Q- M'hm. And then that was applied to the total number of deaths in Canada?

A- In the age range.

Q- In the age range. And for nineteen eighty-three (1983), there was a -- by that process, the number of thirty-four thousand seven sixteen (34,716) was arrived at for total deaths?

A- For nineteen eighty-three (1983).

Q- Yes, and for nineteen eighty-five (1985), the figure thirty-five thousand four o four (35,404) was arrived at for total deaths?

A- Yes.

Q- And the breakdown between men and women is given under their respective columns?

A- Yes.

Q- Yes; and using that method, there's, I think, you would -- you used the term yourself, fairly wide confidence levels, a low of twenty-two thousand three thirty-three (22,333) to a high of over forty-two thousand (42,000) for nineteen eighty-three (1983) and twenty-two thousand eight hundred (22,800) to forty-two thousand nine hundred (42,900) for nineteen eighty-five (1985)?

A- Yes.

Q- So the number's somewhere within that range, the actual number is somewhere within that range according to that method?

A- The most likely estimate is thirty-five thousand (35,000).

Q- Is -- does ninety-five percent (95%) confidence level mean that it's -- mean that it's somewhere in that range?

A- Well, what the confidence limit means is that the -- the central figure, the thirty-five thousand (35,000) is our best estimate. That's the most likely true figure. What the ninety-five percent (95%) limit means is there's a ninety-five percent (95%) chance that the true number falls in the range, the wider range, but the best estimate is the central one.

Q- And then if we look at Table 2, just so we understand

how that was done, this is -- this purports to apply a different relative risk for different age groupings, five (5) year age groupings for men and women between thirty-five (35) and eighty-four (84)?

A- Yes.

Q- And, as I understand it, the relative risk that we used for the purposes of this table was -- is a different relative risk than was used for purposes of Table 1?

A- Well, it's different in two (2) ways. One (1), it's based on the American study and secondly, it's broken down by age.

Q- So it's different, yes?

A- Well, it's different in those ways, yes.

Q- Yes; and in doing this table, you considered two (2) different American studies, one (1) was the Hammond study and one (1) was the Godley study, am I correct?

A- No, one (1) was the Godley study and the other was a population survey of smoking habits. The figures we used come from Godley.

Q- Well, you discuss in this article, I'm not going to go through the text, you discuss whether to use the Hammond figures or the Godley -- or Hammond studies or the Godley studies?

A- Yes.

Q- And you used the Godley studies?

A- Right, we did.
Q- And both of them are American studies?
A- Correct.
Q- And the Hammond study was American figures for relative risk based on a survey in the nineteen fifties (1950s)?
A- Yes.
Q- And the Godley study was a set of figures based on a study that Godley did in the United States in the nineteen sixties (1960s)?
A- Yes, mid -- about nineteen sixty-six (1966).
Q- Yes; and, of course, both of those studies were based on American populations?
A- Correct.
Q- And American populations are not better or worse, they're just different than the Canadian population, a different racial mix, there's different socio economic status, there's a lot of differences between Americans and Canadians, are there not?
A- There are differences but none that would account for a large difference in the relative risk estimates.
Q- Are there differences?
A- There are differences ...
Q- Yes.
A- ... but none that would account for a large difference in relative risks estimates.

Q- And, of course, in the nineteen fifties (1950s) and the nineteen sixties (1960s), the -- first of all, there were many more people smoking in the United States as a percent of the population than there are now in Canada, aren't there?

A- There were more people smoking, yes, but the women had not smoked very long.

Q- And in the nineteen fifties (1950s) and the nineteen sixties (1960s), the type of cigarettes being smoked in the United States was very different than the situation in Canada at that time or now?

A- The cigarettes may have been different, yes.

Q- And the tar levels are different now than they were then?

A- The reported tar levels are different now.

Q- Yes. All right, so then, as I understand it, these American figures for relative risk we found -- we find in the column one (1) on Table 2, is that correct?

A- Yes.

Q- And then that figure is applied to the proportion of ever smokers in Canada, and that's column two (2)?

A- Yes.

Q- And, again, those are the proportions -- and it depends on the definition of what ever smoker is -- but they range from men thirty-five (35) to thirty-nine (39),

it's seventy-two percent (72%) and would the men range from seventy-two percent (72%) to the fifty-five (55) to fifty-nine (59) year olds, eighty-four percent (84%) to the eighty (80) to eighty-four (84) year olds, sixty-one percent (61%) ever smokers?

A- Yes, they -- in the mid-seventies on average.

Q- And women are somewhat lower, usually in the forties (40s) or fifties (50s)?

A- Yes, they average out around the mid-forties.

Q- Yes; and then there's another factor that is -- that in column three (3) that comes from what, this point three one four (.314) and point three one zero (.310) for the years nineteen eighty-three (1983) and eighty-five ('85). What's that factor?

A- Population attributable risk percent.

Q- And that comes from where?

A- That's the formula which is based on the proportion exposed times the relative risks minus one (1) divided by that figure plus one (1).

Q- Yes, and where does -- and who made up that figure? Where does that figure come from, based on what survey?

A- The original formula was developed by Levin about nineteen fifty (1950).

Q- Where?

A- In the United States, and was published -- re-published

by MacMahon and Pugh in their text book of epidemiology about nineteen seventy (1970) or so. It's also, I think, been published by Phillip Cole.

Q- All right; and then, applying that formula, that formula was applied to the total number of deaths in Canada in these various age groups?

A- Yes.

Q- Okay, and a separate column is given for men and women and we come up with the total of thirty-three thousand six o three (33,603) for -- for women -- I'm sorry, thirty-three thousand six o three (33,603) in nineteen eighty-three (1983) and thirty-five thousand one thirty-one (35,131) in nineteen eighty-five (1985)?

A- Yes.

Q- On that basis?

A- Right.

Q- Now, if you look at the nineteen eighty-five (1985) figures, the total of deaths attributable to tobacco for nineteen eighty-five (1985), and just take the deaths attributable to tobacco over the years -- I'm sorry. For persons over seventy (70) years of age, would you -- am I correct that for males there is a -- there are three (3) figures given, five thousand six eleven (5,611), two three five five (2355) and two four six four (2464)?

A- Yes.

Q- And take it from me those figures amount to ten thousand four hundred and thirty (10,430); and for females are the figures eighteen eighteen (1818), thirty-two seventeen (3217) and twenty-two fifteen (2215)?

A- Yes.

Q- And take it from me that amounts to seven thousand two fifty (7,250). So we've got seventeen thousand (17,000) per sixteen hundred and eighty (1,680) of those deaths are people over seventy (70); right?

A- Yes.

Q- On this basis. So about fifty percent (50%) of the thirty-five thousand (35,000) deaths, thirty-five thousand one hundred and thirty-one (35,131) deaths are for people over seventy (70); right?

A- Roughly.

Q- Well, that's what that table shows, doesn't it?

A- Well...

Q- Does it or not? Does that table show that of the thirty-five thousand one hundred and thirty-one (35,131) deaths, roughly fifty percent (50%) are for people over seventy (70)?

A- Correct.

Q- And if we drop it down to age sixty-five (65) or more, the figure increases by -- in the case of males, by

another two thousand eight eighty (2,880) and in the case of females by another one thousand six forty-four (1,644).

A- Yes.

Q- Yes?

A- This is true, because the number of cancer and cardiovascular deaths and emphysema deaths, it goes up quite rapidly among older people.

Q- I'm not asking you why, I'm asking you whether I'm reading the table right? Am I reading the table right?

A- I've agreed with your comments, yes.

Q- So that the figure then of these thirty-five thousand (35,000) deaths for people over sixty-five (65) is twenty-two thousand two hundred and four (22,204) out of the thirty-five thousand one thirty-one (35,131). Yes?

A- Looks like that's about right, yes.

Q- About two-thirds? Roughly. Yes?

A- Yes.

Q- Now, this article was done by three (3) people it says, Collishaw, Tostowaryk and Wigle -- and you're Wigle, yes?

A- Yes.

Q- You're the Wigle in this article?

A- Yes.

Q- And Collishaw is the Neil Collishaw that's been a

witness here?

A- Yes.

Q- And Tostowaryk is in the same department?

A- Yes.

Q- Health and Welfare?

A- Yes.

Q- And does the order of the people named mean anything? I mean is Collishaw the one that's most responsible for it and then Tostowaryk and then you? Is that the way these academic papers usually go?

A- Yes, roughly speaking. Basically method two (2) was done by Collishaw and Tostowaryk. Method one (1) was done by me.

Q- See, I'm a little curious about that because we were told on the examination for discovery that Mr. Collishaw is not an expert on epidemiology. We were told this man is not an expert and he's not an epidemiologist. So what I want to know is what did Collishaw, who is not an epidemiologist and not an expert on anything, why is he the lead person in this article?

A- Because he did most of the work.

Q- I see. So the fact that he had no expertise to do it didn't make any difference?

A- Well, he may not officially have expertise, but in reality he does.

Q- Well, if in reality he does, why was it that we were told on the discovery, I wonder, that he didn't have any expertise?

A- Well, he's a sociologist by training and the methods of sociology are quite similar to those of epidemiology.

Q- I see.

A- So the fact is he does have expertise.

Q- So when we were told on the examination for discovery that the man is not an expert, I guess we were just told something inaccurate, were we, according to you?

A- I'm giving you my personal opinion.

Q- Yes.

Me EVRAIRE:

Well, indeed, and my friend's putting to this witness a transcript about which this witness is -- to which this witness is not privy and it's not his own discovery in any event.

Me CHERNIAK:

Well, is my friend resigning from what we were told on discovery. We couldn't ask Mr. Collishaw any question that required any opinion because we were told he wasn't an expert.

Now, I assume that we were being told the truth.

Me EVRAIRE:

My friend can put the questions to the witness. He

doesn't have to use the discovery. That's my objection is the use of the discovery with a witness who wasn't the one discovered.

THE COURT:

So what? It's part of the evidence. He can say X person said that. Is he in fact to his own knowledge that which he said he is.

Me EVRAIRE:

Well, the witness has answered him.

Me CHERNIAK:

Q- Now, am I correct that this paper originally arose out of a number of earlier studies that were done in the department by Collishaw and Tostowaryk that you were not originally involved in?

A- I'm aware that he had done some previous work. I couldn't list you every version.

Q- But you were consulted on and saw some of the earlier versions, didn't you?

A- Probably, I don't recall.

Q- Well, let's see whether you do recall some of them.

I'm showing you a Department of Health and Welfare document dated June of nineteen eighty-four (1984). Its got a Department of Health and Welfare stamp on it for production in this lawsuit, six thousand eight eighty-two (6,882) to six thousand eight nine nine --

number sixty-eight ninety-nine (6899).

A- I don't have the report.

Q- I'll give it to you.

Now, first of all, are you familiar with this document? Let's look at the abstract.

A- I don't remember for sure whether I saw this one or not.

Q- Well, let's go through it and see if your recollection is improved.

"Estimates of mortality attributable to tobacco use in Canada are represented for the period 1967 to 1982. Estimates are based on observations made and representative of national surveys conducted in the United States between 1966 to '68 and the total number of deaths attributable to tobacco use among persons aged 35 to 84 is estimated to be 24,000 to 25,000 or 19 to 20% of all deaths in that age group. That's what it says?

A- Yes.

Q- And if we can just look through the document itself, I suggest to you that both the Hammond and the Godley studies were examined and it was decided to use -- decided to use the Godley study rather than the Hammond study for relative risks, am I correct?

A- The -- I can tell you what I understand about the -- the

paper that was published, but I don't really have much to say about this draft version.

Q- Well, this paper was never published.

A- Right, so it's never had peer reviews.

Q- But what I want to suggest to you is that with what this version of -- of the study in the department showed was that in nineteen sixty-seven (1967), the -- if we look at page seven (7), "Results".

Me EVRAIRE:

Well, my friend has asked the question which has not been answered for good reason. My friend presses the witness to answer whether he's familiar with this and if he's seen it and the witness has tried to thumb through it to be able to answer that but I think we need to have that answer before my friend continues.

Me CHERNIAK:

This is a department document and...

Me EVRAIRE:

That's not the point, my friend knows that's not the point. The point is whether this witness is familiar with this document. The fact that there may be documents in the department doesn't mean that Dr. Wigle is familiar with every one of them. I think he's entitled to take the time to say whether or not he's familiar with it and whether he's seen it. That's the

question that my friend has put.

Me CHERNIAK:

Q- Dr. Wigle, this is one (1) of the first studies that led up to the final study, isn't it? It deals with the same issue, mortality in Canada attributable to tobacco use and it's by Wigle and Tostowaryk, same people who have -- who wrote the last study with you?

A- It's by Collishaw and Tostowaryk.

Q- I'm sorry, by Collishaw and Tostowaryk. It's one of the preliminary studies that led up to the final one, isn't it?

A- It's just a report to me. I don't know where it fits the -- it's not enough information in it to explain the discrepancy between it and the later -- the published report.

Q- What it showed was that the -- that the -- that the total deaths according to this study in nineteen eighty-two (1982) was estimated to be about twenty-four thousand (24,000) to twenty-five thousand (25,000) people in Canada attributed to tobacco, isn't that so, that's what it shows?

A- That's what...

Q- Rightly or wrongly, that's what it shows?

A- That's what the abstract states but there's not -- not enough information in this paper on a quick scan to know

why it differs from the later estimate other than the calendar year is different.

Q- Well, I'm going to follow it through, let's just look at page seven (7) and just see what it shows. Using the method one (1) -- there are two (2) methods described in the paper.

"Using method 1, the estimated number of deaths attributable to tobacco use among men increased from 16,300 in 1967 to 18,200 in 1982."

Do you see that, page seven (7)?

A- The method one (1) is based on Godley.

Q- Yes. No, but...

A- Five (5) year...

Q- ...with the five (5) year -- the five (5) year summaries, and apparently and according to method one (1), there were sixteen thousand three hundred (16,300) deaths in nineteen sixty-seven (1967) and eighteen thousand two hundred (18,200) among men in nineteen eighty-two (1982); and women, the same figures are fifty-four hundred (5,400) in nineteen sixty-seven (1967) to six thousand nine hundred (6,900) in nineteen eighty-two (1982). So just using the comparable numbers, in nineteen sixty-seven (1967), the totals would be sixteen thousand three hundred (16,300) plus

fifty-four hundred (5,400) which would be twenty-one thousand seven hundred (21,700), the total for Canadians in that age group; and nineteen eighty-two (1982) would be a total of eighteen thousand two hundred (18,200) plus sixty-nine hundred (6,900) which would be about twenty-five thousand (25,000), twenty-five thousand one hundred (25,100)?

A- Well, it's too large a difference to explain just based on the change in calendar year from...

Q- Nineteen sixty-seven (1967) to nineteen eighty-two (1982)?

A- From nineteen eighty-two (1982) to nineteen eighty-five (1985).

Q- No, no, no, we're not talking about nineteen eighty-two (1982) to nineteen eighty-five (1985). We'll come to that. What I've read from you is that the nineteen eighty-four (1984) paper by Collishaw and Tostowaryk using Godley's method came up with figures for nineteen sixty-seven (1967) of about twenty-one thousand seven hundred (21,700) deaths across Canada...

A- But there's no detailed calculations to know...

Q- Whether there is or not, I'm just -- these are the same people that came up with the final paper within a couple of years, and in nineteen eighty-two (1982) the figures that they came up with using Godley's method were

twenty-five thousand one hundred (25,100)? That's what this paper says, rightly or wrongly, am I not right, by Tostowaryk and Collishaw?

A- Yes, but...

Q- Yes, and yet in your paper in nineteen... in the paper that you became associated with, that was published in May, nineteen eighty-eight (1988) -- we'll see in a moment when it was actually written -- the figures using Godley's method for a slightly longer period includes people up to eighty-five (85). You came up with figures considerably larger than twenty-one thousand (21,000) or twenty-five thousand (25,000), right?

A- Yes, but the published version has an update in it that you can verify the numbers or is this...

Q- Yes. I'm just trying to...

A- ... required?

Q- I'm just trying to see what the department is.

Me EVRAIRE:

Let him finish his answer, please, about this report. Go on.

A- The -- this draft report does not have enough information to be sure that the calculations were done correctly.

Me CHERNIAK:

Q- Well, let's just look at... at page nine (9) under

"Discussion". Let's see what the authors said about their figures.

"The number of deaths attributable to tobacco use is determined by 2 factors: the degree of exposure to tobacco smoke and the relative risk of death among persons who ever smoked. The degree of exposure, as measured by the proportion of persons who ever smoked, is very little since 1967. However, it is an imperfect measure of the degree of exposure. Ideally, such individuals' exposure would be measured in cigarette-years, and suitably weighted for time since smoking cessation among former smokers."

27/008315 Now that wasn't done, as best you can tell, in this paper, was it? Was it? Excuse me, was it?

Me EVRAIRE:

Well, again, My Lord, let's be fair to this witness. He's thumbed through a document which he said he hadn't seen before. If my friend wants an answer to that...

Me CHERNIAK:

It's a simple question. He either...

Me EVRAIRE:

... I think he should permit the witness the time to read it or to read it overnight. He's pressing him: is

it accurate, is it different, but how can he do that honestly, since he hasn't seen the document before it was put before him this afternoon? Let's be fair here.

THE COURT:

Give him time to read.

A- The method used did not take into account pack-years or years quit.

Me CHERNIAK:

Q- And nor did the final version that was published, did it?

A- Well, the relative risk estimates from Godley's study, which dates sixty-six ('66) to sixty-eight ('68), for ever smokers, are quite similar to more recent estimates. For example, the American Cancer Society cancer prevention survey too, except for women the -- the -- no, I should say the original Hammond study was similar to the more recent American Cancer Society study, except for women. Like the relative risk in men did not change much over time...

THE COURT:

Q- Doctor...

A- ... but those for women increased.

Q- ... if you look at the Table 2 of this document, you have the source, the source is Godley, and the number seems to be a combination of ages. Instead of having by

five (5) years, you have that by ten (10) years, but if you adjust the numbers that you have on your Table 2 and the numbers that we find at page sixty-eight ninety-six (6896), these are the same numbers.

Me CHERNIAK:

Q- The point is, Doctor, whatever the deficiencies of Godley's method were in this discussion, Godley was used again in the published version and it's the same Godley, the same study in the nineteen sixties (1960s). It hasn't changed. It hasn't gotten any better, it hasn't gotten any worse. It's the same Godley study, right?

A- That's true, but it's not clear that even if you had this extra information, that it would change the relative risk materially. You could do that adjustment, it might not make any difference.

Q- Whether...

A- Or any significant difference.

Q- Whether it would make any difference or not, it's never been done. You didn't do it. You, Collishaw and Tostowaryk didn't do it?

A- We've done it in other studies, not in this one.

Q- Yes. And then -- then it goes on to say, at the bottom of page nine (9):

"Measurement of relative risk, however, is more problematic. Implicit in the use of

relative risks determined in the 1960s ..."

-- that's Godley's study in the 1960s --

"... is the assumption that smoking-related all cause mortality remains a nearly constant proportion of all deaths. Lung cancer and chronic obstructive lung disease death rates have been increasing since the 1960s. Epidemiological studies from the 1960s attributed over 80% of these deaths to tobacco use and there is no reason to believe there has been a decline in that proportion. Rates of death from heart disease and cerebrovascular disease, which have been also causally related to smoking, have been declining steadily since the 1960s. However, there are many other causal and risk factors associated with these diseases including hypertension, diet, exercise and stress. It is possible that much of the observed decline in rates of death from circulatory disorders could be accounted for by improved hypertension management, improved diets, more physical activity and better stress management. If this is the case, then estimates determined in the 1960s of the

relative risk of death from circulatory disorders, would be much lower than actual relative risks in the 1980s. Similarly, the relative risks for all cause mortality would be underestimated."

So the point is we don't know. Things have changed since the nineteen sixties (1960s), and we don't know the extent of it, do we?

A- That's true, but there is some false reasoning here. The relative risk would not change necessarily if the smoking-related all cause mortality as a proportion of all deaths changed. The relative risk simply measures the difference in risk between the current -- or the exposed group and the unexposed group, and for that to change -- it could change, for example, for women, where, in the early nineteen fifties (1950s) and sixties (60s), women hadn't smoked long enough to develop the full relative risk or the full risk of smoking; and since that time, the relative risks of women for -- related to smoking and coronary heart disease and lung cancer have increased. I just don't find that the reasoning in that paragraph that you read hangs together.

Me CHERNIAK:

Can we make that the next RJR exhibit, please?

THE CLERK:

RJR-160.

Me CHERNIAK:

Q- And then, just continuing on in that document on page ten (10), what the authors say is, in conclusion, on that issue:

"However, this question cannot be resolved without new estimates of relative risks of smoking-related deaths for the 1980s."

That's what they thought at that time, the pair of them, am I correct?

A- That's what they said. I don't agree.

Q- Yes. Well, and in fact, it wasn't done for the paper that was ultimately published.

A- Well, if anything the relative risks have increased for women so if we had more recent estimates, the number of deaths attributable would have increased.

Q- Whether it would have or not, we don't have the nineteen eighties (1980s) figures and you didn't use them; is that correct?

A- Well, we have Canadian data in method one (1) which goes from the early seventies (70s) to nineteen eighty-one (1981) which is ten (10) years better than Godley. Ten (10) years more recent.

Q- Did you know that there was a study by Tostowaryk and

Collishaw for nineteen eighty-one (1981) that was prepared in the Bureau of Tobacco Control and Biometrics?

THE COURT:

Well, first of all, who is Mr. Tostowaryk? He's working for the Health and Welfare, obviously?

A- He's a statistician.

Q- He's a statistician.

Me CHERNIAK:

Q- And let's just look at the abstract for this document. The total in mortality of all ages in Canada in nineteen eighty-one (1981) was one hundred and seventy-one thousand o twenty-nine (171,029). Just stopping there, how does that number compare with the total mortality for Canada in nineteen eighty-three (1983) and nineteen eighty-five (1985), according to your ...

A- That's for all ages. Whereas I used thirty-five (35) to seventy-nine (79) in method one (1) in the published report, and age thirty-five (35) to eighty-four (84) was used in method two (2) in the published report. This was referring to all ages.

Q- All right. Let's just go on with the abstract then, I guess we can't compare the two (2) numbers. The total number of excess deaths attributable to cigarette use by smokers thirty-five (35) years of age and older was

estimated at twenty-one thousand nine hundred and forty-three (21,943) which was composed of eighteen thousand and sixty-nine (18,069) male deaths and thirty-eight hundred and seventy-four (38,074) female deaths. And you'll see that the body of the article indicates how those numbers were arrived at. When did you become aware that there was a nineteen eighty-one (1981) study that estimated tobacco-related deaths in Canada at something like twenty-one thousand (21,000) -- well, it's almost twenty-two thousand (22,000) deaths.

A- I'm not sure that I've seen this before, so this may be the first time.

Q- May I make this the next RJR exhibit?

Me EVRAIRE:

Well, I question whether it can be made an exhibit when this witness has not seen it. One makes an exhibit if the witness identifies it as a document he's authored or has used. So I would object to this becoming an exhibit.

Me CHERNIAK:

My Lord, it's a document from this man's own department. It's a government document. It was produced to us by the government and I'm tendering it as an exhibit because it's a government document.

Me EVRAIRE:

It's my submission my friend or his friend, Mr. Irving, should have put it in through Mr. Collishaw if they wanted to file it as an exhibit. This is not the witness through whom this document should be made an exhibit. It's still my submission.

THE COURT:

I mean, Mr. Collishaw is going to testify in a few -- presumably...

Me BAKER:

Some day.

Me EVRAIRE:

Some day.

THE COURT:

....sometime.

Me EVRAIRE:

Well, then I would suggest we mark it for identification, if my friend wishes to put it in. I think it should have that caveat, as indeed the previous one, his document which I believe the witness confirmed he'd only seen when Mr. Cherniak provided it to him, said he wasn't familiar with it. It's my submission both what is presently marked as RJR-160 and this document should be marked for identification through Mr. Collishaw.

THE COURT:

But be it as it may, they're both Health and Welfare documents.

Me EVRAIRE:

But it's my submission that doesn't mean that this is the witness through whom these should be put. If my friend wants to do it on that basis, he or Mr. Irving should have done that through the person who was proffered as the witness for Health and Welfare. The fact that there's a document in the department doesn't mean this is the witness through whom that document should be put. The question is: is the witness proving the document? You know, we're talking about formal proof here and this is not the witness through whom that should be put.

Me CHERNIAK:

You know, My Lord, we're talking about a document that is quite obviously, by its title and by its content, a predecessor of the paper that subsequently got published by Wigle, Tostowaryk and Collishaw in nineteen eighty-seven (1987). I mean, it's kind of a silly discussion, I say respectfully...

THE COURT:

Technically, it's silly. But we'll -- you could mark it for identification. I could take it under reserve. I

don't mind.

Me EVRAIRE:

I'll take your first choice. The identification.

THE COURT:

So this way you won't forget to file it in. So.

Me EVRAIRE:

That's a good point. No one will forget it. So it's my submission that RJR-160 should be...

THE COURT:

And then it will meet the proof of its content instead of ...

Me EVRAIRE:

Exactly.

THE COURT:

... only going to the credibility of the witness.

Me EVRAIRE:

So RJR-160, it's my submission, should read RJR -- for identification number -- C, Mr. Greffier and the next one RJR, identification D. Thank you.

I would just politely inquire if my friend is going into another area that may be lengthy. It is four twenty-five (4H25), I note.

Me CHERNIAK:

I'm sorry. I was thinking of something else, My Lord. Was my friend talking to me?

THE COURT:

Go ahead.

Me CHERNIAK:

Thank you.

Q- So, Dr. Wigle, we've got in these documents marked for identification, we've got Wigle -- or at least Tostowaryk and Collishaw in nineteen eighty-one (1981), or at least for nineteen eighty-one (1981), in a paper published or at least delivered, made, sometime after that date and we don't know what date. We have cited the nineteen eighty-one (1981) mortality figures for tobacco at something like twenty-two thousand (22,000) deaths for Canadians between ages thirty-five (35) and seventy-nine (79). We've got the nineteen eighty-two (1982) figures in the next -- in the document we've marked for identification dated June nineteen eighty-four (1984), being somewhere around twenty-four (24,000) or twenty-five thousand (25,000) deaths for nineteen eighty-two (1982) and then we have a document that's dated January nineteen eighty-six (1986). And we'll see whether you can identify this one or not. And this is called: "Estimates of Mortality Attributable to Tobacco Use Among Canadians aged 34 to 84 for 1983," I guess it is. And it's got three (3) names on it. It's got Collishaw, Tostowaryk and D.T. Wigle. Now, are you

the D.T. Wigle?

A- Yes.

Q- So at this point, sometime, obviously, in nineteen eighty-five (1985), you became involved? Did you, Doctor?

A- I think that's apparent, yes.

Q- Yes. And, Doctor, are you really suggesting to us that when you became involved in nineteen eighty-five (1985) and were involved in the production of this document that I'm now showing you that you didn't know anything, you've never seen the two (2) papers for the two (2) previous years that I've just outlined -- I've just showed to you that are obviously the predecessors of this very study dealing with the same subject matter by your two (2) co-authors. They never showed them to you? Are you seriously telling us that or would you like to reconsider whether you ever saw them before?

A- Well, what I answered previously was I don't remember seeing this.

Q- Well...

A- And even if I had, I don't understand what difference it would have made because the only one that counts is the one that was published. It's perfectly normal to have draft reports going through different stages over different periods of time with different numbers in

them. It's the nature of science.

Q- But doctor...

THE COURT:

Do we know that they are drafts? We don't know that. You don't know -- you don't remember seeing them so we don't know if they are draft or they are actual government papers. We're going to know that some day.

A- These are not Health and Welfare officially sanctioned reports.

Q- Well, we don't know that yet. What we have is documents which bear the names of two (2) individuals and the -- which indicate that they come from the Bureau of Tobacco Control and Biometrics?

A- If I were to take them at face value, as internal working reports of historic interest only.

Me CHERNIAK:

Q- But Doctor, let's just deal with one thing at a time. Mr. Evraire wouldn't allow us to put in as exhibits the previous two (2) documents because you hadn't identified them. Now what I'm suggesting to you is -- is that in the very next year, the second of those reports was dated nineteen eighty-four (1984). In the very next year, at least, nineteen eighty-five (1985) because this document that has your name on it was published or was dated, at least, January nineteen eighty-six (1986) and

it is dealing with precisely the same subject matter as the earlier two (2), and I'm suggesting to you is that Tostowaryk and Collishaw put before you their earlier studies?

A- Well, they may have. I don't remember, and if they did, so be it. I don't remember.

Q- It certainly would be highly likely that they would do so, isn't?

A- Yes, but I see tons of reports. I mean, reports, reports, reports, but...

Q- Well, this isn't reports, reports, reports. This is the -- those are the two (2) -- those are the two (2) earlier reports that deal with the very subject matter that you put your signature to or allowed your name to stand on in nineteen eighty-six (1986). Are you really suggesting to me that Wigle -- at least that Collishaw and Tostowaryk would hide them from you?

A- Well, when I collaborate with people and we collaborate all the time, I don't ask them for every previous thought they ever had on the subject. I'm only interested on what they think right now and I mean, Neal could have written an estimate that there were zero (0) deaths attributable to tobacco the day before he sent this one over.

Q- All right, let's look at it. Could we mark this as the

next numbered RJR exhibit.

THE COURT:

This one can go at 160, I guess.

Me CHERNIAK:

RJR-160.

THE COURT:

And on that joyous note, we will adjourn until tomorrow morning.

Me CHERNIAK:

May I just point out one thing to you just as the last question of the day.

Q- In nineteen eighty-six (1986), when you collaborated with Collishaw and Tostowaryk, the figure went -- the figure for nineteen eighty-five (1985) -- for nineteen eighty-three (1983) went from the twenty-five thousand (25,000) in nineteen eighty-two (1982) to thirty-three thousand six hundred (33,600) for nineteen eighty-three (1983)?

A- That's based on the U.S. Surgeon General estimates.

Q- Whatever it's based on, as soon as you got involved or at least contemporaneously with you getting involved in the calculations done by the department, the Collishaw Tostowaryk estimate for nineteen eighty-two (1982) which was twenty-five thousand (25,000) or so which had risen only slightly from the nineteen sixty-seven (1967)

estimate, the first year you got involved was to make a calculation for nineteen eighty-three (1983) and the figure jumped to thirty-three thousand six hundred (33,600). That's right, isn't it?

A- Well, I believe that the best estimate is thirty-five thousand (35,000).

Q- Yes, thank you.

Me POTTER:

My Lord, I should announce that I will only have about forty-five (45) minutes or even half an hour with Mr. -- Dr. Wigle tomorrow, and that being so, if my friends opposite can manage to find a witness for tomorrow afternoon, we, at least wouldn't leave it blank tomorrow afternoon.

Me CHERNIAK:

Yes, I will certainly be -- I would think not much more than an hour more.

Me EVRAIRE:

I will do my best to bring a witness tomorrow.

Me CHERNIAK:

I'm on virtually the last topic I'm going to cover.

Me EVRAIRE:

I'll see if Dr. Kozlowski can make his way here tomorrow. Of course, the way I'd organized it with him is that I understood it would be two (2) days with Dr.

Wigle. I will do my best but I can make no promises.

He may, in fact, not be at their office right now.

THE COURT:

We will see.

ADJOURNMENT